



RICE
UNIVERSITY

GENERAL
ANNOUNCEMENTS
2004-2005

NOTE: *This catalog represents the most accurate information available at the time of publication. The university reserves the right to correct or otherwise change any such information without notice at its sole discretion. With respect to course offerings, the departments have attempted to anticipate which courses will be offered, and by whom and when such courses will be taught. However, course offerings may be affected by changes in faculty, student demand, and funding. Although efforts have been made to indicate these uncertainties, course offerings are subject to change without notice.*

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Please address all correspondence to the appropriate office or department followed by the university mailing address given above.

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Financial Aid, Scholarships, Part-time Employment on Campus	Student Financial Services 116 Allen Center; 713-348-4958
Graduate Study	Chair of the appropriate department (see pages 68-71)
Undergraduate and Graduate Students, Undergraduate Curricula	Office of the Vice President for Student Affairs 101 Lovett Hall; 713-348-4996

Rice University is committed to equal opportunity in education and employment. It is the policy of Rice University to attract qualified individuals of diverse backgrounds to its faculty, staff, and student body. Accordingly, Rice University does not discriminate against any individual on the basis of race, color, religion, sex, sexual orientation, national or ethnic origin, age, disability, or veteran status in its admissions, its educational programs, or employment of faculty or staff. In employment, the university seeks to recruit, hire, and advance women, members of minority groups, individuals with disabilities, Vietnam-era veterans, and special disabled veterans.

RICE UNIVERSITY

GENERAL ANNOUNCEMENTS

2004–2005



RICE

CONTENTS

University Addresses and Phone Numbers	Inside Front Cover
Message from the President	vi
Academic Calendar 2004-2005	vii
The University and Campus	2
Board of Trustees	3
Rice University Campus Map	4
General Information for All Students	7
Student Responsibility	8
Faculty Grading Guidelines	9
Student Health and Counseling Services	10
Information for Undergraduate Students	13
Introduction	14
Graduation Requirements	14
Undergraduate Majors	17
Academic Regulations	21
Summer School for College Students	36
Admission of New Students	36
Tuition, Fees, and Expenses	43
Financial Aid	47
Honor Societies	50
Undergraduate Student Life	51
Information for Graduate Students	55
Introduction	56
Admission to Graduate Study	56
Graduate Degrees	57
Academic Regulations	62
Tuition, Fees, and Expenses	72
Financial Aid	73
Graduate Student Life	75
Class III Students in Nondegree Programs	76
Departments and Interdisciplinary Programs	79
Air Force Science	80
Ancient Mediterranean Civilizations	83
Anthropology	86
Architecture	88
Art History	95
Asian Studies	97
Bioengineering	102
Biosciences	106
Biochemistry and Cell Biology	
Ecology and Evolutionary Biology	
Center for the Study of Languages	113
Chemical Engineering	115
Chemistry	118
Civil and Environmental Engineering	124
Classical Studies	130
Cognitive Sciences	132
Computational and Applied Mathematics	135
Computer Science	139
Earth Science	143

Economics	148
Education	155
Education Certification	156
Electrical and Computer Engineering	160
English	165
Environmental Analysis and Decision Making	168
Environmental Studies	171
French Studies	174
German and Slavic Studies	177
Hispanic Studies	179
History	181
Kinesiology	184
Lifetime Physical Activity Program	187
Linguistics	188
Management	192
Managerial Studies	203
Mathematics	205
Mechanical Engineering and Materials Science	207
Medieval Studies	211
Military Science	214
Music	217
Nanoscale Physics	221
Naval Science	223
Neurosciences	225
Philosophy	226
Physics and Astronomy	228
Policy Studies	232
Political Science	236
Psychology	239
Religious Studies	241
Sociology	244
Statistics	246
Subsurface Geoscience	248
The Program for the Study of Women and Gender	251
University Courses	255
Visual Arts	256
Courses of Instruction	259
ACCO (Accounting)	261
AFSC (Air Force Science)	261
ANTH (Anthropology)	261
ARAB (Arabic)	274
ARCH (Architecture)	275
ARTV (Visual Arts)	286
ASIA (Asian Studies)	293
ASTR (Astronomy)	297
BIOE (Bioengineering)	299
BIOS (Biosciences)	306
CAAM (Computational and Applied Mathematics)	314
CENG (Chemical Engineering)	317
CEVE (Civil and Environmental Engineering)	321
CHEM (Chemistry)	326
CHIN (Chinese)	332
CLAS (Classical Studies)	334

COMP (Computer Science)	337
CSCI (Cognitive Sciences)	343
ECON (Economics)	343
EDUC (Education/Education Certification)	349
ELEC (Electrical and Computer Engineering)	352
ENGI (Engineering)	362
ENGL (English)	363
ENST (Environmental Studies)	375
ESCI (Earth Science)	375
FREN (French Studies)	383
FSEM (Freshman Seminar)	390
GERM (German)	392
GREE (Greek)	397
HART (History of Art and Architecture)	397
HEAL (Health Sciences)	409
HEBR (Hebrew)	411
HIND (Hindi)	412
HIST (History)	413
HONS (Honors Courses)	431
HUMA (Humanities)	432
ITAL (Italian Language and Culture)	435
JAPA (Japanese)	436
KINE (Kinesiology)	437
KORE (Korean)	440
LATI (Latin)	441
LING (Linguistics)	442
LPAP (Lifetime Physical Activity Program)	449
MANA (Managerial Studies)	455
MATH (Mathematics)	455
MDST (Medieval Studies)	459
MECH (Mechanical Engineering)	463
MGMT (Management)	470
MILI (Military Science)	488
MSCI (Materials Science)	489
MUSI (Music)	493
NAVA (Naval Science)	510
NEUR (Neurosciences)	511
NSCI (Natural Sciences)	512
PHIL (Philosophy)	514
PHYS (Physics)	519
PLSH (Polish)	524
POLI (Political Science)	525
PORT (Portuguese)	534
PSYC (Psychology)	534
RELI (Religious Studies)	541
RUSS (Russian)	552
SANS (Sanskrit)	553
SLAV (Slavic Studies)	553
SOCI (Sociology)	554
SOSC (Social Sciences)	557
SPAN (Spanish)	558
STAT (Statistics)	568
THEA (Theatre)	572

TIBT (Tibetan)	574
UNIV (University Courses)	574
WGST (The Program for the Study of Women and Gender)	577
Administration and Staff	587
Administration	588
Administrative Offices	588
College Masters	589
Emeritus Faculty	590
Faculty	594
University Standing Committees for 2004-2005	630
Index	631

MESSAGE FROM THE PRESIDENT

Rice University is one of the most distinguished universities in the United States. We pride ourselves both on the quality of our undergraduate education and on our commitment to outstanding graduate education and research. In addition to its strong academic offerings and programs, undergraduate life is built on community and responsibility, as reflected in the residential college system and the Honor System. Our faculty's extraordinary contributions to research cut across many disciplines.

General Announcements is a guide to the world of Rice University: the academic backgrounds of our faculty; the rules and responsibilities of student life, both graduate and undergraduate; the diverse scope of our degree programs; and especially the richness of our curriculum. Each of our eight schools carries on Rice's tradition of excellence.

We invite you, through *General Announcements* and our website—<http://www.rice.edu>—to explore the distinctive qualities of Rice University.

David W. Leebron
President
William Marsh Rice University

ACADEMIC CALENDAR 2004–2005

FALL 2004

Monday, August 2	Deadline: Tuition due for entering freshmen
Tuesday, August 10	Deadline: Tuition due for returning undergraduate students
Sunday, August 15 (through Friday, August 20)	Orientation week for new students
Monday, August 16	Deadline: Tuition due for graduate students
Monday, August 23	First day of classes
Friday, September 3	Deadline: Last day to add courses without a fee Deadline: Last day to add a course without obtaining instructors permission Deadline: Last day to withdraw with a 100% refund of tuition and fees Deadline: Last Day to drop to part-time with a 100% refund of tuition
Friday, September 3 at 5:00 P.M.	1st Registration/Add/Drop PIN for fall 2004 expires for all undergraduates online registration is disabled so that PINs may be reset
Monday, September 6	Labor Day (holiday–no classes)
Tuesday, September 7 at 9:00 A.M. (through Friday, October 29 at 5:00 P.M.)	Online registration resumes 2nd Registration/Add/Drop PIN for fall 2004 is active for all undergraduates
Tuesday, September 7	Registration continues for undergraduate students
Friday, September 10	Deadline: Last day to withdraw or drop to part-time with a 70% refund of tuition
Friday, September 17	Deadline: Last day to complete late registration or add courses Deadline: Last day to drop courses without a fee Deadline: Last day to designate a course as “Audit” or vice versa Deadline: Last day anticipated aid for fall shows as a credit on student accounts Deadline: Last day to withdraw or drop to part-time with a 60% refund of tuition
Friday, September 24	Deadline: Last day to convert a “Pass/Fail” to an earned letter grade for courses taken in spring 2004 Deadline: Last day for instructors to submit final grades to clear “Incompletes” for courses taken in spring 2004 Deadline: Last day to withdraw or drop to part-time with a 50% refund of tuition

Friday, October 1	Deadline: Last day to withdraw or drop to part-time with a 40% refund of tuition
Friday, October 8	Deadline: Mid-semester grades for first-year undergraduate students due Deadline: College course plans due to Vice President for Student Affairs Deadline: Last day to withdraw or drop to part-time with a 30% refund of tuition
Monday, October 11 (through Tuesday, October 12)	Midterm Recess
Wednesday, October 13	All classes normally held on Monday meet; all Wednesday classes canceled (to equalize holidays by days of the week during the semester)
Friday, October 15	Deadline: Last day to withdraw or drop to part-time with a 20% refund of tuition
Friday, October 22	Deadline: Last day to withdraw or drop to part-time with a 10% refund of tuition
Friday, October 29 at 5:00 P.M.	Fall Registration/Add/Drop PINs expire for undergraduates Deadline: Last day to drop courses for all graduate students and "returning" undergraduate students with a \$10.00 fee Deadline: Last day to designate a course status to "Pass/Fail" option
Monday, November 1	Deadline: Last day to file an application for a May 2005 conferral of degree with the Office of the Registrar Deadline: Last day to file an application for mid-year conferral of degree with the Office of the Registrar Deadline: Last day to file the following in the Office of Graduate Studies for mid-year degree conferral: • Thesis master's candidacy petitions • Certification of non-thesis master's • Form for automatic master's • PhD candidacy petitions
Monday, November 1 (through Friday, January 21, 2005)	1st Registration/Add/Drop PIN is active for undergraduates for spring 2005 registration
Monday, November 1 (through Sunday, November 7)	Spring 2005 registration begins for currently enrolled undergraduate, graduate and fifth-year students
Monday, November 8	Students who are planning to enroll for spring 2005 but failed to do so last week will be assessed a \$55 "Failure to Register" fee
Monday, November 15 (through Friday, November 19 at 5:00 P.M.)	Registration for SELF-scheduled final exams for undergraduate courses
Monday, November 15	Deadline: Last day to complete financial aid application for fall 2004

Friday, November 19 at 5:00 P.M.	Deadline: Last day to register for SELF-scheduled final exams for undergraduate courses
Thursday, November 25 (through Friday, November 26)	Thanksgiving Recess (holiday—no classes)
Wednesday, December 1	Deadline: Last day to complete loan applications for fall 2004
Friday, December 3	Last day of classes Deadline: (for fall 2004 matriculants only) Last day to drop courses—students must go to the Office of the Registrar by 5:00 P.M. Deadline: For a mid-year conferral of degree, students must submit theses to the Office of Graduate Studies by 12:00 NOON Deadline: Withdrawal for non-payment occurs for failure to pay amounts owed to the university Deadline: All Faculty Evaluations are due to the Office of the Registrar by 5:00 P.M.
Saturday, December 4 (through Wednesday, December 15)	SELF-scheduled exams for undergraduate courses
Wednesday, December 8 (through Wednesday, December 15)	Scheduled FINAL exams for undergraduate courses
Wednesday, December 15 at 5:00 P.M.	Deadline: All take home final examinations are due
Thursday, December 16 (through Monday, January 3, 2005)	Online registration is shut down to accommodate end-of-term processing and the winter holiday
Wednesday, December 22 at 12:00 NOON	Deadline: All final grades are due to the Office of the Registrar

SPRING 2005

Monday, January 3	Online registration resumes
Wednesday, January 5	Deadline: Tuition due for all students
Wednesday, January 12	First day of classes
Monday, January 17	Martin Luther King, Jr. Day (holiday—no classes)
Wednesday, January 19	All classes normally held on Monday meet; all Wednesday classes canceled (to equalize holidays by days of the week during the semester)
Friday, January 21 at 5:00 P.M.	1st Registration/Add/Drop PIN expires for all undergraduates online registration is disabled so that PINs may be reset Deadline: Last day to resolve grades of "Other" from fall 2004
Monday, January 24 at 9:00 A.M. (through Friday, April 1 at 5:00 P.M.)	Online registration resumes 2nd Registration/Add/Drop PIN is active for undergraduates for spring 2005 registration
Friday, January 28	Deadline: Last day to add courses without a fee Deadline: Last day to add a course without obtaining instructor's permission

	Deadline: Last day to withdraw with a 100% refund of tuition and fees
	Deadline: Last day to drop to part-time status with 100% refund of tuition
Tuesday, February 1	Deadline: Last day to file the following in the Office of Graduate Studies for a May 2005 conferral of degree: • Thesis master's candidacy petitions • Certification for non-thesis master's • Form for automatic master's • PhD candidacy petitions
Friday, February 4.....	Deadline: Last day to withdraw or drop to part-time status with a 70% refund of tuition
Friday, February 11.....	Deadline: Last day to complete late registration or add course(s)
	Deadline: Last day to drop courses without a fee
	Deadline: Last day to designate a course as "Audit" or vice versa
	Deadline: Last day to withdraw or drop to part-time status with a 60% refund of tuition
	Deadline: Last day anticipated aid for spring shows as credit on student accounts
Tuesday, February 15.....	Financial aid application materials available to returning students to apply for need-based aid for 2005-2006
Friday, February 18.....	Deadline: Last day for students to convert a "Pass/Fail" to an earned letter grade for courses taken in fall 2004
	Deadline: Last day for instructors to submit final grades to clear "Incompletes" for courses taken in fall 2004
	Deadline: Last day to withdraw or drop to part-time status with 50% refund of tuition
Friday, February 25.....	Deadline: Last day to withdraw or drop to part-time status with a 40% refund of tuition
Friday, March 4	Deadline: Mid-semester grades for first-year undergraduate students are due
	Deadline: College course plans are due to the Vice President for Student Affairs
	Deadline: Last day to withdraw or drop to part-time status with a 30% refund of tuition
Monday, March 7 (through Friday, March 11)	Spring Break (no classes)
Friday, March 11	Deadline: Last day to withdraw or drop to part-time status with a 20% refund of tuition
Friday, March 18	Deadline: Last day to withdraw or drop to part-time status with a 10% refund of tuition
Friday, March 25	Deadline: Sophomores must file a Declaration of Major form with the Office of the Registrar

Friday, April 1 at 5:00 P.M.	Spring Registration/Add/Drop PINs expire for undergraduates Deadline: Last day to drop course(s) for all graduate students and “returning” undergraduate students with a \$10.00 fee Deadline: Last day to designate a course as “Pass/Fail” Deadline: Last day to complete financial aid applications for spring 2005
Monday, April 4 (through Friday, September 2)	First Registration/Add/Drop PIN is active for undergraduates for fall 2005 registration
Monday, April 4 (through Tuesday, April 12)	Fall 2005 registration begins for currently enrolled undergraduate, graduate and fifth year students
Thursday, April 7 (through Friday, April 8)	Spring Recess (no classes)
Monday, April 11	Summer term financial aid applications available
Wednesday, April 13	Students who are planning to enroll for fall 2005 but failed to do so last week will be assessed a \$55 “Failure to Register” fee
Friday, April 15	Deadline: Last day to complete loan applications for spring 2005 Priority Deadline: For returning and graduate students to submit financial aid applications for 2005–2006
Monday, April 18 (through Friday, April 22 at 5:00 P.M.)	SELF-scheduling of final examinations for undergraduate courses
Friday, April 22 at 5:00 P.M.	Deadline: Last day to register for SELF-scheduled final exams for undergraduate courses
Friday, April 29	Last day of classes Reading day (no classes) except for lab courses and seminars that meet once a week Deadline: (for spring 2005 undergraduate matriculants only) Last day to drop courses Deadline: For a May 2005 conferral of degree, students must submit theses to the Office of Graduate Studies by 12:00 noon Deadline: All Faculty Evaluations are due to the Office of the Registrar by 5:00 P.M. Deadline: Withdrawal for non-payment occurs for failure to pay amounts owed to the university Deadline: Last day to submit summer financial aid applications
Saturday, April 30 (through Thursday, May 5 at 12:00 noon)	All degree candidates: All SELF-scheduled, scheduled final, and take-home exams must be completed

Saturday, April 30 (through Wednesday, May 11)	All non-graduating students: SELF-scheduled exams for undergraduate courses
Wednesday, May 4 (through Wednesday, May 11)	All non-graduating students: Scheduled FINAL exams for undergraduate courses
Saturday, May 7 at 9:00 A.M.	Deadline: Grades for all degree candidates are due in the Office of the Registrar
Saturday, May 14	Ninety-Second Commencement
Wednesday, May 18 at 9:00 A.M.	Deadline: All grades for non-graduating students are due in the Office of the Registrar
Friday, June 10	Deadline: Last day to resolve grades of "Other" from spring 2005

SUMMER 2005

Early Session (May 10–27)

Monday, April 11	Summer term financial aid applications available
Wednesday, April 13	Deadline: For early application discount (by 2:30 P.M.)
Friday, April 29	Deadline: For application to Early Session courses (by 2:30 P.M.) Deadline: To submit summer aid applications
Tuesday, May 3	Notification sent to applicants who submitted applications by April 29
Monday, May 9	Registration: 9:00 A.M. – 2:00 P.M. Deadline: For final tuition payment
One week after first class	Deadline: For dropping courses without academic penalty (no refunds) (by 3:00 P.M.)
Tuesday, May 10	First day of classes—Early Session
Thursday, May 12	Deadline: For adding courses (by 3:00 P.M.) Deadline: For late registration (by 3:00 P.M.)
Monday, May 16	Deadline: For visiting and Class III students to submit transcripts (must be received by this date)
Wednesday, May 18	Deadline: For submitting refund requests (must be received by this date) Please see section on Withdrawal Penalty and Tuition Refund.
Friday, May 20	Deadline: For designating "Pass/Fail" option (by 3:00 P.M.)
Friday, May 27	Last day of classes – Early Session
Monday, May 30	University holiday
Friday, June 3	Deadline: For completion of all Early Session course work, including final examinations. Exam schedule determined by instructor.
Friday, June 10	Deadline: For submitting grades to the School of Continuing Studies Summer School Office (by 3:00 P.M.)

SUMMER 2005

General Session (May 31–July 22)

Monday, April 11	Summer term financial aid applications available
Wednesday, April 13	Deadline: For early application discount (by 2:30 P.M.)
Friday, April 29	Deadline: To submit summer aid applications
Friday, May 13	Deadline: For application to General Session courses (by 2:30 P.M.)
Thursday, May 19	Notification sent to applicants who submitted applications by May 13
Friday, May 27	Registration, 9:00 A.M. – 2:00 P.M. Deadline: For final tuition payment
One week after first class	Deadline: For dropping courses without academic penalty (no refunds) (by 3:00 P.M.)
Monday, May 30	University holiday
Tuesday, May 31	First day of classes – General Session
Friday, June 10	Deadline: For adding courses (by 3:00 P.M.) Deadline: For late registration (by 3:00 P.M.)
Monday, June 13	Deadline: For visiting and Class III students to submit official transcripts (must be received by this date)
Monday, June 20	Deadline: For submitting refund requests (must be received by this day.) Please see section on Withdrawal Penalty and Tuition Refund.
Monday, July 4	University holiday
Wednesday, June 6	Deadline: For designating “Pass/Fail” option (by 3:00 P.M.)
Friday, July 22	Last day of classes – General Session
Tuesday, July 26	Deadline: For completion of all General Session course work, including final examinations
Friday, July 29	Deadline: For submitting grades to School of Continuing Studies Summer School Office (by 3:00 P.M.)
Friday, August 5	Final grades mailed from the Office of the Registrar

THE
UNIVERSITY AND
THE CAMPUS

THE UNIVERSITY AND CAMPUS

Rice is a private, independent university dedicated to the "advancement of letters, science, and art." Occupying a distinctive, tree-shaded, nearly 300-acre campus only a few miles from downtown Houston, Rice attracts a diverse group of highly talented students with a range of academic studies that includes humanities, social sciences, natural sciences, engineering, architecture, music, and business management (graduate study only). The school offers students the advantage of forging close relationships with members of the faculty and the option of tailoring graduate and undergraduate studies to their specific interests. Students each year are drawn to this coed, nonsectarian university by the creative approaches it historically has taken to higher education.

One of the unique features of Rice is its residential colleges. Before matriculating, each of the university's 2,822 undergraduates becomes a member of one of nine residential colleges, which have their own dining halls, public rooms, and dorms on campus; most of the first-year students and close to 80 percent of all undergraduates reside at their associated colleges. Because each student is randomly assigned to one of the colleges and maintains membership in the same college throughout the undergraduate years, the colleges are enriched by the diversity of their students' backgrounds, academic interests and experiences, talents, and goals. A faculty master, who is assigned to each college and lives in an adjacent house, helps cultivate a variety of cultural and intellectual interests among the students, as well as supporting an effective system of self-government. Other faculty or members of the community serve as associates to individual colleges. The experience of college residence is indispensable to conveying the rich flavor of academic life at Rice, allowing students to combine their usual studies with an array of social events, intramural sports, student plays, lecture series, innovative college-designed courses, and an active role in student government.

Graduate students come to Rice for the chance to work closely with eminent professors and researchers who are seeking to extend the horizons of current knowledge. Although most of the approximately 1,948 graduate students live off campus, taking advantage of the city's readily available and affordable housing, space is also available in the university-owned Graduate Apartments. Graduate students have a voice within the university community through the Graduate Student Association, which organizes and funds regular social events.

Rice offers students the pleasures and challenges of academic life within the peaceful enclosure of a campus widely acclaimed for its beauty. Campus buildings, including an extensive computer center and the 2.25 million-volume Fondren Library, form graceful groupings under spreading live oaks. Recent additions include the architecturally stunning Anne and Charles Duncan Hall, a state-of-the-art building for computational engineering; James A. Baker III Hall, which houses the Institute for Public Policy and the School of Social Sciences; and E. Dell Butcher Hall, home to the Center for Nanoscale Science and Technology. Additionally, Rice boasts the largest open-air stadium in the city.

Rice students also enjoy all the commercial and cultural advantages of a major metropolitan center. The school maintains extensive technological links to the area's many colleges and universities, the acclaimed Texas Medical Center, and other resources. And both students and faculty enjoy Houston's panoply of cultural offerings, from opera to blues clubs and from a renowned collection of post-impressionist art to alternative art spaces. Rice and Houston together provide an ideal learning and living environment.

BOARD OF TRUSTEES

TRUSTEES

E. William Barnett, *Chair*
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 D. Kent Anderson
 Teveia Rose Barnes
 Alfredo Brener
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 Cindy Lindsay
 Michael R. Lynch
 Robert R. Maxfield
 Steven L. Miller
 M. Kenneth Oshman
 Marc Shapiro
 William N. Sick
 L. E. Simmons

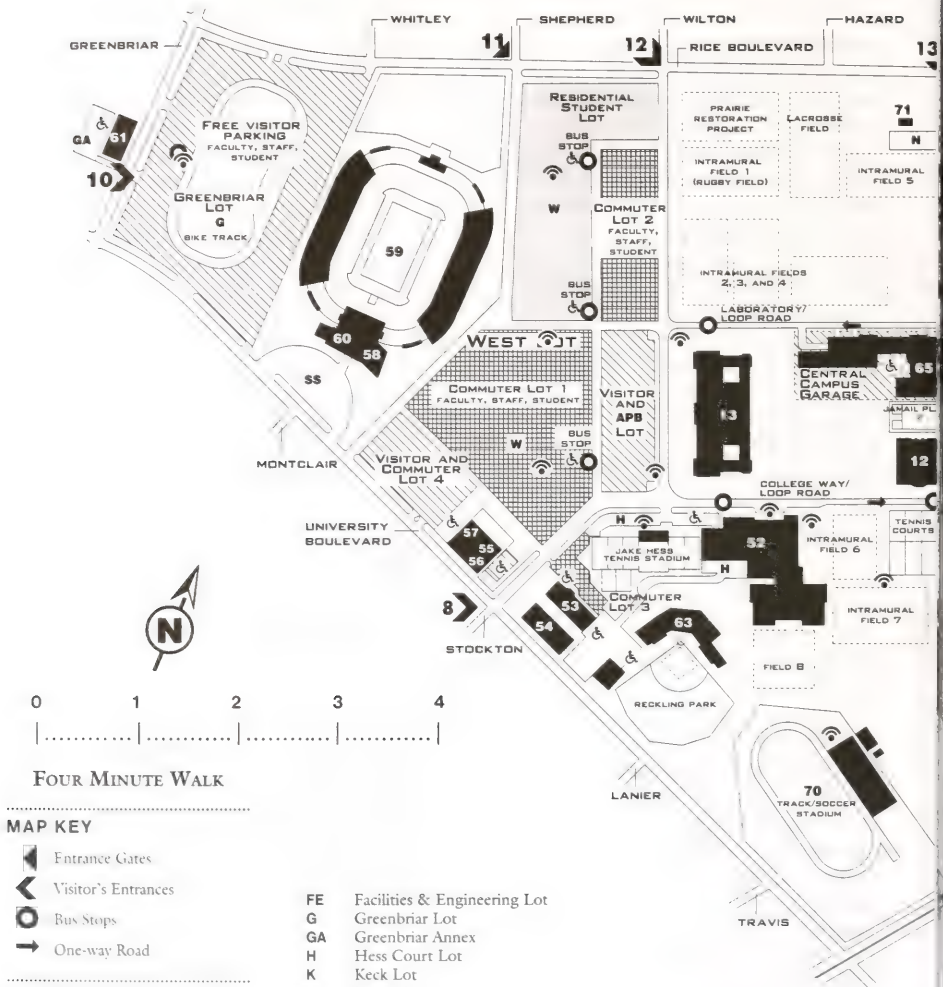
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 Ralph S. O'Connor
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 T. Robert Jones
 Baine P. Kerr
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 Neal T. Lacey, Jr.
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 Jerry McCleskey
 J. W. McLean
 G. Walter McReynolds
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 Pat H. Moore
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 Paula Meredith Mosle
 J. Howard Rambin
 David L. Rooke
 Frank B. Ryan
 Louisa Stude Sarofim
 Gus A. Schill, Jr.
 Stephen J. Shaper
 Stephen B. Smith
 Louis D. Spaw, Jr.
 Selby W. Sullivan
 Helen Saba Worden

RICE UNIVERSITY CAMPUS MAP



MAP KEY

- Entrance Gates
- Visitor's Entrances
- Bus Stops
- One-way Road

PARKING KEY

- Faculty/Staff Parking
- Resident Student Parking
- Commuter Parking
- Visitor Parking - free lot G
- Accessible Parking

PARKING LOTS:

- A** Abercrombie Lot
- APB** Alice Pratt Brown Hall Lot
- B** Baker College Housing & Dining Lot
- BG** Biology-Geology Lot
- C** Campanile Lot
- CG** Central Campus Garage (Paid)

- FE** Facilities & Engineering Lot
- G** Greenbriar Lot
- GA** Greenbriar Annex
- H** Hess Court Lot
- K** Keck Lot
- L** Lovett Lot
- M** Main Street Lot
- N** North Lot
- NC** North Colleges Residents Lot
- SC** South Colleges Residents Lot
- SS** South Stadium Lot
- W** West Lot

PARKING RATES:
 West (West of Entrance 12): \$1.00/hour
 East (East of Entrance 12): \$2.00/hour

PAYMENT METHODS:
Central Campus Garage: cash or credit card.
Founder's Court, North, and West Lots Visitor Section: credit card.

BUILDING KEY

1. Lovett Hall
Admission, Vice President for Enrollment, Vice President for Investments & Treasurer, Vice President for Public Affairs, Vice President for Student Affairs
2. Sewall Hall
3. Herzstein Hall
4. Anderson Hall
Dean of Architecture
5. Rayzor Hall
6. Fondren Library
Vice Provost & Librarian
7. Humanities Building
Dean of Humanities

8. Herring Hall
9. Rice Memorial Chapel
10. Rice Memorial Center
Bookstore, Alumni Office
11. Ley Student Center
12. James A. Baker III Hall
*Dean of Social Sciences, Director
of Baker Institute for Public Policy*
13. Alice Pratt Brown Hall
Dean of Music
14. Dell Butcher Hall
15. Space Science Building
16. Keith-Wiess Geological Laboratories
17. M.D. Anderson Biological Laboratories
18. George R. Brown Hall
19. Hamman Hall
20. Hicks Kitchen
21. Mudd Building
22. Herman Brown Hall
23. Howard Keck Hall
Dean of Natural Sciences
24. Mechanical Engineering Building

25. Ryon Engineering Laboratory
26. Facilities and Engineering
27. Mechanical Laboratory
28. Abercrombie Engineering
Laboratory
29. Anne & Charles Duncan Hall
Dean of Engineering
30. Martel College Master's
Residence
31. Marian & Speros B. Martel
College
32. Mary Gibbs Jones College
33. Jones College Master's Residence
34. Brown College Master's
Residence
35. Margaret Root Brown College
36. Ralph S. O'Connor House
37. Cohen House
Faculty Club
38. Allen Center for Business Activities
*President, Provost, Registrar,
Cashier, Controller, Vice President
for Finance & Administration,
Vice President for Resource
Development*
39. James A. Baker College
40. Edgar Odell Lovett College
41. Lovett College Master's Residence
42. Will Rice College

43. Baker College Master's Residence
44. Will Rice College Master's Residence
45. Richardson College Master's Residence
46. Sid W. Richardson College
47. Hanszen College Master's Residence
48. Harry C. Hanszen College
50. Wiess College Master's Residence
51. Harry C. Wiess College
52. Gymnasium & Autry Court
53. Rice Media Center
54. Speros P. Martel Center for Continuing Studies
Dean of Continuing Studies
55. Rice University Police Department
56. Navy ROTC
57. Post Office
58. Cox Fitness Center
59. Rice Stadium
60. Athletic Offices & "R" Room
61. Greenbriar Building
Office of Public Affairs
62. Rice Graduate Apartments
63. Reckling Park at Cameron Field
65. Jesse H. Jones Graduate School of Management
Dean of Graduate School of Management
66. Jones Commons
67. Brown Commons & Residences
68. North Servery
69. South Servery
70. Track/Soccer Stadium
71. Observatory
72. Morton Rich Health & Wellness Center
73. Wiess House

GENERAL INFORMATION FOR ALL STUDENTS



STUDENT RESPONSIBILITY

The university expects all Rice students to exercise personal responsibility over their actions. Their behavior should reflect a respect for the law and for their contractual obligations, a consideration for the rights of others, and shared standards of considerate and ethical behavior.

Students are responsible for knowing and following all information, policies, and procedures listed in this *General Announcements*. Questions should be directed to the appropriate office or administrator.

Rice encourages self-discipline, recognizing that effective student government, including judicial processes, and the integrity of the honor system depend on the willingness of all students to meet community standards of conduct.

The university, however, reserves the right to insist on the withdrawal of any student whose conduct it judges to be clearly detrimental to the best interests of either the student or the university. The appropriate authorities take such action only after careful consideration.

No individual or group may use the name of the university or one of its colleges without prior approval of the university or the college.

THE HONOR SYSTEM

The honor system, one of the oldest and proudest traditions at Rice, is administered by the Honor Council, whose student members are elected each year by the student body. Adopted by a student vote in 1916, the honor system has remained essentially the same since that time but for changes in the procedures and membership of the Honor Council.

Students take all written examinations and complete any specifically designated assignments under the honor system. By committing themselves to the honor system, all students accept responsibility for assuring the integrity of the examinations and assignments conducted under it. The Honor Council is responsible for investigating reported violations and for conducting a hearing when the facts warrant. The assistant dean of Student Judicial Programs, who reviews the results of the investigations and hearing, considers the council's recommendations when issuing penalties.

The Honor Council conducts an ongoing program to acquaint new students and faculty with the honor system. The Honor Code and other related information and resources are located at the homepage of the Honor Council: <http://www.ruf.rice.edu/~honor/>.

THE CODE OF STUDENT CONDUCT

With regard to nonacademic disciplinary matters, the assistant dean of Student Judicial Programs and the University Court—a court of student peers—enforce the Code of Student Conduct that governs the administration of student order and discipline. The Code of Student Conduct applies to all undergraduate students, transfer students, graduate students, and professional students registered at Rice University, as well as to visiting students, Class III students, second degree students, and auditors from the time they arrive on campus for orientation until they have completed their studies or degrees and physically left campus. Organizations also are subject to this Code. All enrolled students also are subject to Rice University policies, rules, and regulations. The assistant dean of Student Judicial Programs oversees the judicial system under the auspices of the vice president for Student Affairs, who has general authority over the student disciplinary system. The Code of Student Conduct

and other related information and resources are located at the homepage of the University Court: <http://www.ruf.rice.edu/~ucourt/table.html>.

FACULTY GRADING GUIDELINES

The Committee on Examinations and Standing has drawn up the following guidelines on grading. Additional information is available on pages 28–31.

- The evaluation of the student's performance in a course and a decision on the appropriate grade is the responsibility of the designated instructor or instructors in the course.
- No student should be given an extension of time or opportunities to improve a grade that are not available to all members of the class, except for verified illness or justified absence from campus. Students who have three scheduled final examinations in two consecutive calendar days may, however, take one of the examinations at another time. Except for scheduled exams, no course assignments may be due between the last day of classes and the last day of the final examination period.
- Students in independent study courses are not to be allowed an extension beyond the time when grades are due. Faculty are to submit grades at the end of the semester for such students based on work completed during the semester. The instructor directing the independent study assumes responsibility with the student for ensuring that the work undertaken is appropriate to the span of a semester and for determining the degree credit to be received.
- The basis for grading and the expectations on all written assignments or tests should be clearly explained to the class in advance, preferably in writing at the beginning of the semester. The instructor should explain clearly which assignments or homework are covered by the honor system and which are not. To prevent allegations of plagiarism on written assignments, students should be warned that all direct and indirect quotations from other sources should be properly acknowledged. The instructor should explain the extent to which the student's paper is expected to be independent of the references and clearly distinguishable from them.
- Instructors should be willing to give any student an explanation of his or her grade as consistent with the grading for the rest of the class. For this reason, the committee urges the faculty to preserve all examinations and written material not returned to students, as well as grade records, for at least the following semester so that students may, if they wish, review with their instructor the basis for the grade received.
- Instructors may not change a semester grade after the grade sheet has been submitted to the registrar, except when there is a clerical error in calculating the grade. This is a long-standing university rule of which the faculty are reminded by the registrar at the end of each semester. It is designed in part to protect the faculty from student pressure for grade changes. All other grade changes, including retroactive change to *withdrawal* or *incomplete*, must be approved by the Committee on Examinations and Standing on the basis of a written petition from the student and on information from the instructor.
- There is no university requirement that a final examination be given in a course. It is university policy that final examinations that cover more than the material since the last examination, that are the only exam in the course, or that are comprehensive of the entire course may be given only during the final examination period. Such examinations may not, for example, be labeled "tests" and administered during the last week of classes. Final

examinations are normally of 3-hour duration. Faculty who, under exceptional circumstances, wish to give longer examinations may do so only if the exam is scheduled as take-home. Under no circumstances may final exams exceed five hours. The "due date" for all take-home final exams is the end of the examination period.

- First-year students receive mid-semester grades around the eighth week of the fall and spring semesters so that they can, if advisable, enroll in tutoring or drop a class for which they may not be prepared. Faculty who teach first-year students in any of their classes will be asked to submit grades of standing for these students during the seventh week of the semester and should schedule the grading of tests, quizzes, or homework assignments accordingly. These grades are not recorded on the student's transcript nor calculated in the grade point average, but they are important indicators for students and their faculty advisers.
- Departments using teaching associates, adjunct professors, or visiting faculty of any kind should make sure these teachers are familiar with Rice grading procedures. A regular faculty member who is well-versed in the grading guidelines should be assigned to assist such instructors.

The chair of the Committee on Examinations and Standing or the vice president for Student Affairs will be glad to advise any faculty member faced with exceptional circumstances that may justify special consideration. Students may petition the committee concerning the application of these guidelines. Suspected or possible violations of the honor system should be submitted to the Honor Council.

STUDENT HEALTH AND COUNSELING SERVICES

STUDENT HEALTH FEE

By paying an annual student health service fee, all students gain access to both the Student Health Service and the Rice Counseling Center. Detailed information on the care and services each provide is available from both centers.

STUDENT HEALTH SERVICE

The student Health Service, an outpatient primary care clinic, is located in the Rich Health and Wellness Center in the former Brown College commons. Two primary care physicians and two nurses staff the clinic.

Clinic hours are from 8:30 A.M. to 5:00 P.M., Monday through Friday, during fall and spring semesters. For after-hours and weekend medical care, students may choose among a number of local hospitals. Students must pay for all medical care outside the clinic's purview, including blood tests, x-rays, and outside physician consultations. Should such medical care be necessary, students are urged to review their insurance coverage and pick the best available option.

In serious emergencies, students should call the Student Health Service (713-348-4966) during work hours) or the Rice University Police Department (713-348-6000).

The clinic is open full time from the first day of Orientation Week until the day before commencement. It is closed during the Christmas break and Thanksgiving. The clinic is also open for reduced hours during the summer months.

The Student Health Service provides the following:

- Primary care for illness and injury with referrals to specialists when needed
- Maintenance of health records for all students
- Immunizations

- Contraceptive counseling and routine Pap smears
- Allergy shots (students must provide serum after a specialist allergy workup)
- Physical examinations (e.g., for employment, transfer to another school, or scholarship expeditions)

Confidentiality—The Student Health Service physician-patient relationship is a confidential one, and medical records will not be released except as required by law, or when the patient poses a significant risk to herself or himself or another person.

Health Insurance—All Rice students must have health insurance of their choice, and must enter details of their health insurance online at <http://studenthealthinsurance.rice.edu> by August 15. Failure to do so will result in automatic billing for insurance. Students may purchase insurance through the university, as described online. Dependent coverage is also available. For questions about the Rice student health insurance plan, students should contact the Rice Counseling Center at rucc@rice.edu. Rice's group coverage for 2004–2005 is effective from 12:01 A.M., August 15, 2004, until 12:01 A.M., August 15, 2005.

RICE COUNSELING CENTER

Rice Counseling Center, in 301A Lovett Hall, addresses students' psychological needs with various programs and services. The center is open year-round except for scheduled holidays and occasional all-day staff retreats. Office hours for counseling and consultations are 8:30 A.M. to noon and 1:00 P.M. to 5:00 P.M., Monday through Friday. Students can make appointments by calling 713-348-4867 or by visiting the center.

Typically, most students who use the counseling services bring with them very common concerns: roommate problems, breakup of a relationship, academic and/or interpersonal anxiety, family problems, difficulties adjusting to Rice, or confusion about personal goals, values, and identity. Counselors are equipped to handle a variety of issues, including substance abuse, eating disorders, sexual assault/abuse/date violence, depression, and the coming-out process. Rice Counseling Center offers both individual and group counseling as well as educational workshops and programs.

When students need prolonged or specialized counseling or treatment, counselors refer them to an outside provider. The students, or their health insurance, must pick up those costs. All students who have paid the Health Service Fee are eligible for initial assessment sessions, consultations, crisis intervention, and educational programming. Individual or group counseling may also be available, if appropriate.

The Rice Counseling Center provides the following services:

- Initial assessment
- Short-term individual and couples counseling
- Group therapy and support groups
- Medication consultations with the center's consulting psychiatrist
- Other consultations (e.g., how to make a referral or how to respond to a friend in distress)
- Educational programming (e.g., various presentations on mental health issues)
- Crisis intervention on a walk-in emergency basis during regular office hours; students may call 713-348-4867 for assistance with emergencies after hours or on weekends

College Assistance Peer Program (CAPP)—Students who have been carefully selected and trained in listening skills and mental-health education serve in this peer

education program as supportive listeners and referral sources for other students. They also assist the center with its educational programming.

Students with Disabilities—Because students who have physical limitations may find it difficult to reach the Rice Counseling Center's third-floor location in Lovett Hall, staff will arrange to see those students in a more accessible location on campus. Students should call the center to make these arrangements.

Confidentiality—Counseling services are confidential: information about a student is not released without that student's written permission. By state law, confidentiality does not extend to circumstances where (1) there is risk of imminent harm to the student or others; (2) the counselor has reason to believe that a child or an elderly or handicapped person is, or is in danger of, being abused or neglected; (3) a court order is issued to release information; (4) the student is involved in a criminal lawsuit; or (5) the counselor suspects that the student has been the victim of sexual exploitation by a former health provider during the course of treatment with that provider.

facilities include Autry Court and Fox Gymnasium for basketball and volleyball, Reckling Park for baseball, the Jake Hess Tennis Stadium, the Rice Track/Soccer Stadium (Wendel D. Ley Track), and the John L. Cox Fitness Center. Encouraging its student-athletes to pursue high goals, Rice prides itself on its dual goal of excellence in both academics and athletics; the rigors of one may not serve as an excuse for less than high-quality performance in the other.

INFORMATION FOR UNDERGRADUATE STUDENTS



INTRODUCTION

The undergraduate experience at Rice is one of intense personal interactions. The close sense of community created by individual placement in residential colleges is extended to warm intellectual and personal relationships with members of the Rice faculty. "Behind the hedges," the beautifully designed, spacious campus is small enough to encourage a sense of belonging even as students engage with the lively cultural currents of one of the country's largest cities.

The academic philosophy at Rice is to offer students beginning their college studies both a grounding in the broad fields of general knowledge and the chance to concentrate on very specific academic and research interests. By completing the required distribution courses, all students gain an understanding of the literature, arts, and philosophy essential to any civilization, a broad historical introduction to thought about human society, and a basic familiarity with the scientific principles underlying physics, chemistry, and mathematics. Building on this firm foundation, students then concentrate on studies in their major areas of interest.

Rice University is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools (SACS), the recognized regional accrediting body in the eleven U.S. Southern states.

Rice grants the two undergraduate degrees, the Bachelor of Arts (BA) and the Bachelor of Science (BS), in a range of majors. The majority of undergraduates earn the BA degree, though students may elect to pursue the BS degree, offered at Rice in some science fields and in various fields of engineering accredited by the Accreditation Board for Engineering and Technology (ABET). Undergraduates may major in any of the numerous fields provided by the various schools of architecture, humanities, music, social sciences, science, and engineering. To accommodate the full range of individual student interests, specific interdepartmental majors are also available, as are selectively approved area majors. In certain departments, students also have the option of overlapping the upper-level course work of their undergraduate degree with those basic requirements necessary to earn a higher degree in the field, considerably reducing the time required to complete their graduate studies. The Shepherd School of Music offers a joint degree in music (BMus/MMus) that may be completed with a fifth year of study.

Through Rice's Education Certification Program, students interested in teaching in secondary schools may complete a program of teacher training, leading to certification in the state of Texas, together with the BA degree. Students interested in satisfying the requirements for admission to medical, dental, or law school should consult with the Office of Academic Advising for completing these programs in conjunction with the various majors.

GRADUATION REQUIREMENTS

DEGREE REQUIREMENTS FOR ALL BACHELOR'S DEGREES

Students are responsible for making certain that their plan of study meets all degree and major requirements. To graduate from Rice University, all students must:

- Be registered at Rice full time for at least four full fall and/or spring semesters
- Complete the requirements of at least one major degree program
- Complete at least 120 semester hours (some degree programs require more than 120 hours)
- Complete at least 60 semester hours at Rice University

- Complete at least 48 hours of all **degree** work in upper-level courses (at the 300 level or higher)
- Complete more than half of the upper-level courses in *degree* work at Rice
- Complete more than half of the upper-level courses in their *major* work at Rice (certain departments may specify a higher proportion)
- Complete all Rice courses satisfying *degree* requirements with a cumulative grade point average of at least 1.67 or higher
- Complete all Rice courses that satisfy *major* requirements (as designated by the department) with a cumulative grade point average of at least 2.00 or higher
- Satisfy the English composition requirement (see below)
- Satisfy the Lifetime Physical Activity Program (LPAP) requirement (see below)
- Complete courses to satisfy the Distribution Requirements (see below)
- Otherwise be a student in good academic and disciplinary standing

To satisfy the English composition requirement, students must pass an English composition examination given during Orientation Week. Those receiving grades of “not satisfactory” on the exam must complete ENGL 103, *Introduction to Argumentation and Academic Writing*, a one-semester course carrying degree credit.

To satisfy the LPAP requirement, students must complete 2 noncredit courses in LPAP. Students with disabilities may make special arrangements to satisfy this requirement.

In order to earn a second degree, students must fulfill the requirements outlined on page 25.

DISTRIBUTION REQUIREMENTS

Each student is required to complete at least 12 semester hours of designated distribution courses in each of Groups I, II, and III. The 12 hours in each group must include courses in at least two departments in that group. (Divisional or interdisciplinary designations, e.g., HUMA or NSCI, count as departments for this purpose.) Interdivisional courses approved for distribution credit may count toward the 12 semester hours in any relevant group; however, students may not count any one such course toward the 12 required hours in more than one group, and may count no more than one such course toward the 12 required hours in any one group.

Students must complete the distribution requirements in each group by taking courses that are designated as a distribution course at the time of course registration, as published in that semester’s *Course Offerings*.

The distribution system presupposes that every Rice student should receive a broad education along with training in an academic specialty. This goal is achieved by courses that are broad based, accessible to nonmajors, and representative of the knowledge, intellectual skills, and habits of thought that are most characteristic of a discipline or of inquiry across disciplines.

Group I—These courses have one or more of the following goals. They develop students’ critical and aesthetic understanding of texts and the arts; they lead students to the analytical examination of ideas and values; they introduce students to the variety of approaches and methods with which different disciplines approach intellectual problems; and they engage students with works of culture that have intellectual importance by virtue of the ideas they express, their historical influence, their mode of expression, or their critical engagement with established cultural assumptions and traditions.

Group II—Three types of courses fulfill this requirement. The first are introductory courses which address the problems, methodologies, and substance of different disciplines in the social sciences. The second are departmental courses that draw upon at least two or more disciplines in the social sciences or that cover topics of central importance to a social science discipline. The third are interdisciplinary courses team-taught by faculty from two or more disciplines.

Group III—These courses provide explicit exposure to the scientific method or to theorem development, develop analytical thinking skills and emphasize quantitative analysis, and expose students to subject matter in the various disciplines of science and engineering.

BACHELOR OF ARTS

The specific requirements of individual majors leading to the Bachelor of Arts degree vary widely. No department may specify more than 80 semester hours (required courses, prerequisites, and related laboratories included) for the Bachelor of Arts. To qualify for the Bachelor of Arts:

- All students must complete at least 120 hours of course work.
- Students in the humanities and social sciences must complete between 18 and 80 hours in course work within the major (including required courses, prerequisites, and related laboratories)
- Students in the sciences and engineering must complete between 24 and 80 hours in course work within the major (including required courses, prerequisites, and related laboratories)
- Students in all fields except architecture must complete at least 60 hours in course work outside the major
- Students in architecture must complete at least 36 hours in course work outside the major

BACHELOR OF SCIENCE IN THE SCHOOL OF NATURAL SCIENCES

The Bachelor of Science degree is offered in astrophysics, biochemistry and cell biology, chemistry, chemical physics, ecology and evolutionary biology, geology, and physics. The specific degree requirements vary from field to field and differ from those of the Bachelor of Arts in that there are greater technical requirements. No department may specify more than 80 semester hours (required courses, prerequisites, and related laboratories included) for the Bachelor of Science. To earn a BS degree in one of these fields, students must complete at least 60 hours in course work outside the major.

BACHELOR OF SCIENCE DEGREES IN ENGINEERING:

**BACHELOR OF SCIENCE IN CHEMICAL ENGINEERING (BSCE),
COMPUTER SCIENCE (BSCS), ELECTRICAL AND COMPUTER
ENGINEERING (BSEE), MATERIALS SCIENCE (BSMS),
MECHANICAL ENGINEERING (BSME),
AND BIOENGINEERING (BSB)**

The Bachelor of Science degree in a given engineering field is distinct from the Bachelor of Arts degree in that it must meet greater technical requirements. In establishing a departmental major for the degree of Bachelor of Science in electrical and computer engineering, materials science, and mechanical engineering, the department may specify no more than 92 semester hours (required courses, prerequisites, and related laboratories included). In establishing the departmental major for the BS in chemical engineering, the department may specify no more than 100 semester hours (required courses, prerequisites, and related laboratories

included). The bioengineering department specifies 94 semester hours for the BS degree (required courses, prerequisites, and related laboratories included). To earn a BS degree, students must meet the following minimum semester hour requirements in course work:

- All majors except chemical engineering and computer science—a total of at least 134 hours
- Chemical engineering majors—a total of at least 132 hours, depending on area, up to 137 hours
- Computer science majors—a total of at least 128 hours

OTHER BACHELOR'S DEGREES

The professional Bachelor of Architecture (BArch) degree requires a fifth year of study and a one-year preceptorship. The Bachelor of Fine Arts (BFA) degree requires a fifth year of concentrated study and advanced courses in addition to the core course requirements. The Bachelor of Music (BMus) degree requires advanced courses in aural skills in addition to the core music curriculum.

UNDERGRADUATE MAJORS

Students must declare a major before preregistration for the junior year, if not sooner, according to the deadline in the Academic Calendar (see Declaring Departmental Majors on page 24). Within some departmental majors, students have the choice of a particular area of concentration. Students also may opt for more than one major; such majors do not necessarily need to be in related fields. More detailed information on the departmental majors briefly described below may be found in the Undergraduate Degree chart (see pages 18–21) in the section “Departments and Interdisciplinary Programs” and by contacting the department chairs or faculty advisers.

DEPARTMENTAL MAJORS

School of Architecture—Students admitted to the university as architecture majors must first complete 4 years of the BA program (architecture major) before applying to the BArch program in their senior year. If admitted, they are assigned a preceptorship with an architectural firm for a one-year period, after which they return to Rice to complete the BArch degree program.

George R. Brown School of Engineering—Rice offers, through eight departments, majors in bioengineering, chemical engineering, civil engineering, computational and applied mathematics, computer science, electrical and computer engineering, mechanical engineering, materials science and engineering, and statistics. Students may elect a double major by combining environmental science with another science or engineering field. These programs lead to either the BA or the BS degree and may qualify students for further graduate study.

School of Humanities—Students may declare majors in art history, classics, English, French studies, German and Slavic studies (includes Russian), Hispanic studies, kinesiology, history, linguistics, philosophy, religious studies, and visual arts. Interdisciplinary majors are available in ancient Mediterranean civilizations, Asian studies, medieval studies, and the study of women and gender, while an interdepartmental major in policy studies combines courses from the School of Humanities and the School of Social Sciences.

Shepherd School of Music—Music students may opt for either a BA or a Bachelor of Music (BMus) degree in performance, composition, music history, and music theory. Students who pass a special qualifying examination may elect an honors

program that leads to the simultaneous awarding of the BMus and Master of Music (MMus) degrees after five years of study.

Wiess School of Natural Sciences—All natural sciences departments, including biochemistry and cell biology, chemistry, earth science, ecology and evolutionary biology, mathematics, and physics and astronomy offer programs leading to the BA degree. BS degrees are offered in some departments. Majors include astronomy, biochemistry, biology, biophysics, chemical physics, chemistry, geology, geophysics, mathematics, and physics. Students may also elect double majors combining one of the programs in natural sciences with another science, a humanities discipline, or an engineering field.

School of Social Sciences—Rice offers majors in anthropology, economics, mathematical economic analysis, political science, psychology, and sociology. Both the interdepartmental policy studies major and the cognitive studies major include sciences, engineering, and humanities courses, while the managerial studies major incorporates course work in the Schools of Engineering and Management.

INTERDEPARTMENTAL MAJORS

Interdepartmental majors combine courses taught by faculty from more than one department; they are listed separately in the Undergraduate Degree Chart (pages 18–21).

UNDERGRADUATE DEGREE CHART

School Department	Undergraduate Degrees Offered	Additional Options or Areas of Concentration (within majors)
SCHOOL OF ARCHITECTURE		
	BA, BArch	BA majors in architecture and in architectural studies
GEORGE R. BROWN SCHOOL OF ENGINEERING		
Bioengineering	BSB	Areas of concentration in cellular and molecular engineering, biomedical instrumentation and imaging, and biomaterials and biomechanics
Chemical Engineering	BA, BSChE	Focus areas in bioengineering, environmental science and engineering, materials science and engineering, and computational engineering
Civil and Environmental Engineering	BA, BSCE	Civil engineering Environmental engineering: BA as double major with any other Rice major; see also chemical engineering for BS options
Computational and Applied Mathematics	BA	Numerical analysis, operations research, optimization, differential equations, and scientific computation
Computer Science	BA, BSCS	Areas of concentration in architecture, artificial intelligence, computational science, foundations, human-computer interaction, and software systems

Electrical and Computer Engineering	BA, BSEE	Areas of concentration in bioengineering computer engineering; systems: control, communications, and signal processing; electronic circuits and devices; and quantum electronics and photonics
Mechanical Engineering	BA, BSME, BSMS	Mechanical engineering: areas of concentration and Materials Science in biomechanics, computational mechanics, fluid mechanics and thermal science, solid mechanics and materials, and system dynamics and control
Statistics	BA	Theoretical and applied training orientations; engineering, scientific, and business applications of probability and statistics; joint work in related departments

SCHOOL OF HUMANITIES

Art History	BA	History of art
Classical Studies	BA	Classics, Greek, Latin
Education	No undergraduate degree offered	Leads to secondary teaching certificate in conjunction with BA in major field. See Education Certification
English	BA	
French Studies	BA	
German and Slavic Studies	BA	German and German cultural studies, and Russian/Slavic studies
Hispanic Studies	BA	Spanish and Latin American literature and Spanish Linguistics
History	BA	
Kinesiology	BA	Areas of concentration in exercise science, sports medicine, and sports management
Linguistics	BA	Areas of concentration in language, cognitive science, second language acquisition, and language, culture, and society
Philosophy	BA	
Religious Studies	BA	Areas of concentration in religious traditions and/or methodology
Visual Arts	BA, BFA	Studio art and special fifth-year courses for BFA candidates

JESSE H. JONES GRADUATE SCHOOL OF MANAGEMENT

	No undergraduate degree offered	Four accounting courses open to all under-graduate students
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SHEPHERD SCHOOL OF MUSIC

	BA, BMus	BA in music; BMus in composition, music history, music theory, and performance; joint BMus/MMus with fifth year of study
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WIESS SCHOOL OF NATURAL SCIENCE

Biochemistry and Cell Biology	BA, BS	Part of an integrated biosciences curriculum
Chemistry	BA, BS	Chemical physics major offered jointly with the Department of Physics and Astronomy and resulting in a BS degree
Ecology and Evolutionary Biology	BA, BS	Part of an integrated biosciences curriculum
Earth Science	BA, BS	Majors in geology, geophysics, and earth science
Mathematics	BA	300-level courses oriented toward problem solving and applications and 400-level and above oriented toward theory and proofs; preparation for graduate studies or high school teaching or other areas; ample opportunity for double-majoring, especially with CAAM, COMP, ELEC, PHYS, or STAT; abundance of courses in analysis, topology, geometry, algebra, etc.
Physics and Astronomy	BA, BS	Majors in physics with specific options in applied physics, biophysics, computational physics, astrophysics, and astronomy; interdepartmental major in chemical physics

SCHOOL OF SOCIAL SCIENCES

Anthropology	BA	Areas of concentration in archaeology and social/cultural anthropology
Economics	BA	Majors in economics and in mathematical economic analysis
Political Science	BA	Areas of concentration in American, comparative, and international relations
Psychology	BA	
Sociology	BA	

INTERDEPARTMENTAL MAJORS

Area Majors	BA	Requires approval of two or more departments, the Office of Academic Advising, and the Committee on Undergraduate Curriculum (see page 33)
Ancient Mediterranean Civilizations	BA	Anthropology, classical studies, Greek, Latin, history, history of art, linguistics, philosophy, and religious studies
Asian Studies	BA	Anthropology, art, history of art, Hindi, history, humanities, linguistics, Chinese, Japanese, Korean, Sanskrit, political science, and religious studies
Cognitive Sciences	BA	Computer science, linguistics, neuroscience, philosophy, and psychology
Education Certification	No undergraduate degree offered	Leads to secondary teaching certificate in conjunction with BA in major field
Managerial Studies	BA	Accounting, economics, political science, psychology, and statistics

Medieval Studies	BA	History of art, classics, English, French, German, history, humanities, linguistics, Spanish, music, philosophy, political science, and religious studies
Policy Studies	BA	Environmental policy, government policy and management, healthcare management, international affairs, law and justice, business policy and management, and urban and social change
Study of Women and Gender	BA	Anthropology, classics, English, French studies, German, Spanish, history, humanities, economics, political science, linguistics, music, psychology, philosophy, religious studies, and sociology

TEACHER CERTIFICATION

Students in the teacher education program earn Texas state teacher certification at the secondary level. Subjects include art, English, French, German, health science, history, Latin, life science, mathematics, physical education, physical science, Russian, science, social studies, and Spanish. For more information on teacher certification programs at the undergraduate and graduate levels, see Education Certification in the Departments and the Interdisciplinary Programs and Courses of Instruction sections.

STUDY ABROAD AND EXCHANGE PROGRAMS

Rice-affiliated and Rice-sponsored programs provide students with opportunities to study throughout the world. Direct exchange programs allow Rice students to change places with university students from another country. Rice is affiliated with nearly 400 program sites worldwide, representing a range of program formats. Some offer direct enrollment in foreign universities, while others specialize in intensive language instruction, field research, or internships.

Each year more than 200 undergraduates from across the disciplines study away from campus and then apply the transfer credit earned toward their degrees. The study abroad advisers, in cooperation with the faculty advisers in each department, assist students in identifying the best programs for their individual interests and academic needs. To assure proper enrollment and transfer of credits and financial aid, students planning to study abroad must make their arrangements through the Department of International Programs. This includes arranging prior approval for transfer credit through the relevant academic department(s) and the registrar.

Detailed information on affiliated programs, including application forms, is available from the Department of International Programs (first floor, Ley Student Center).

ACADEMIC REGULATIONS

All undergraduate students are subject to the academic regulations of the university. Students are responsible for making certain they meet all departmental and university requirements and academic deadlines. The Committee on Examinations and Standing administers the rules described below. Under unusual or mitigating circumstances, students may submit a written petition requesting special consideration to the committee. Students should address all correspondence to the committee in care of the vice president for student affairs.

REGISTRATION

Currently enrolled students register in April for the fall semester and in November for the spring semester. Student registration is prioritized based on the hours

earned and in progress. Entering students complete their registration during Orientation Week before classes begin in August. Undergraduate students are required to obtain a Registration/Add/Drop PIN in order to register for classes. To receive this PIN students must meet with their divisional or major advisor to discuss their courses for the upcoming semester. The first Registration/Add/Drop PIN for each semester is valid from the registration period through the end of the second week of classes. The second Registration/Add/Drop for each semester will be valid from the beginning of the third week of classes through the drop deadline. Registration/Add/Drop PIN validity dates can be found in the Academic Calendar.

To be properly registered, new students must complete, sign, and return a matriculation card. New students may not register or attend classes until they return a properly completed health data form and meet immunization and TB screening requirements. Immunizations required for admission are diphtheria/tetanus, measles, rubella, and mumps, with immunizations against hepatitis B and chicken pox recommended. The Mantoux tuberculin skin test is also required. A late fee of \$30 is charged for failure to submit a fully completed health data form by the required date. Each year, the Office of the Registrar publishes the specific deadlines for the semesters of that year.

Unless students elect a special payment plan, they must pay all tuition and fees for the fall semester by the end of the second week in August and for the spring semester by the end of the first week in January. Any student in arrears and therefore not registered as of the last day to drop classes will not be allowed to live on campus the next semester, nor will such students be allowed to receive credit for the nonregistered semester. Appeals to this policy must be addressed to the vice president for enrollment.

Students who do not register by the deadline in the Academic Calendar (pages viii–xiv) are considered withdrawn from the university by default. To be readmitted, students must be in good standing and must pay a late registration fee of \$100.

After the fourth week of classes and until the end of the eighth week of classes, students may request approval for readmission from the vice president for Student Affairs. After the eighth week of classes, students may request approval for readmission from the Committee on Examinations and Standing.

Drop/Add—During the first two weeks of the semester, students may add or drop courses without penalty. After the second week of the semester, the following conditions apply for adds and drops:

Undergraduate students in their first semester at Rice:

- Must obtain instructor's permission and have a valid Registration/Add/Drop PIN to add a course in the third or fourth week of classes (a \$10 fee will be assessed)
- May not add courses after the fourth week of classes, except with the approval of the Committee on Examinations and Standing (a \$50 fee will be assessed)
- May drop courses up to the last day of classes with a valid Registration/Add/Drop PIN (a fee will be assessed as described on the following pages)

All other students:

- Must obtain instructor's permission and have a valid Registration/Add/Drop PIN to add a course in the third or fourth week of classes (a \$10 fee will be assessed)

- May not add courses after the fourth week of classes, except with the approval of the Committee on Examinations and Standing (a \$50 fee will be assessed)
- May drop courses week up to the end of the tenth week of classes with a valid Registration/Add/Drop PIN required (a fee will be assessed as described below)
- May not drop courses after the end of the tenth week of classes, except with the approval of the Committee on Examinations and Standing (a \$50 fee will be assessed)

For courses with start and end dates not coinciding with the normal Rice semester calendar, the registrar will consult with the instructor and set:

- The add deadline approximately one-third of the way into the course
- The drop deadline approximately two-thirds of the way into the course

Students may not drop courses where the Honor Council has ruled a loss of credit.

Schedule of add fees:*

Weeks 3-4	\$10	From Week 5	\$50
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Schedule of drop fees for undergraduate students in their first semester at Rice:*

Weeks 1-4	\$0	Weeks 5-14	\$10
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Schedule of drop fees for all other students:*

Weeks 1-4	\$0	Weeks 5-10	\$10
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*Note: Weeks are defined as academic instruction; thus, midterm recess is not included in this calculation.

Course Load—Students at Rice normally enroll for 15 to 17 semester hours each semester. For most students, this allows them to complete the requirements for graduation in 8 semesters. Students must secure permission in writing from the vice president for student affairs before registering for courses, if they want to:

- Register for more than 20 credits
- Register for or drop below 12 credits
- Register concurrently at another university

No student may receive credit for more than 20 credits in a semester, including courses taken elsewhere, without this prior written approval.

Students should also be aware that the registrar's office must report a student's part-time status to various groups, such as loan agencies, scholarship foundations, insurance companies, etc. It is in the student's best interest to determine if he or she will be affected in any way by part-time status.

Students may not register for more than 1 course at the same hour unless they receive permission from the instructors involved.

REPEATED COURSES

Students may not repeat courses for which they have received either advanced placement or transfer credit. Credit will not be counted twice for students who repeat these types of courses.

Some Rice University courses may be repeated for credit. They are specifically noted in the *General Announcements* and on the registrar's website.

A matriculated student may repeat all other courses; however, both grades will be factored into the term and cumulative grade point average. Credit for these courses will only be counted once. For example, a student took HIST 117 and received a grade of B. The student repeated this course and received a grade of A. Both grades—the A and B—are included in his/her GPAs; however, he/she only receives three credits toward his/her degree. On the Official transcript, a repeated course is indicated by one of the following values:

I Included in GPA and earned hours

A Include in GPA, but exclude from earned hours

DECLARING DEPARTMENTAL MAJORS

To receive a bachelor's degree, a student must complete the requirements for at least one major. Students declare their major using a form provided by the registrar. The department chair or designee must sign the form acknowledging the declaration. It is expected that the department will counsel the student about the requirements that must be met to complete the major and the likelihood the student will be able to meet them. If the department believes a student is not well prepared for success in its major, it may express its reservations on the form. No department or program may, however, refuse to admit an undergraduate as a major, with the exception of the School of Architecture and the Shepherd School of Music or in the case of limitations of resources. In such cases, departments must publish criteria they will use to limit the number of majors together with their major requirements.

Students must declare a major before registration for the junior year. They will not be permitted to register for the fall semester of the junior year without having declared a major. The deadline for notifying the Office of the Registrar of the major declaration is listed in the Academic Calendar for each year.

Students are free to declare a major at any time before this deadline and are always free to change the major declaration by completing the appropriate form with the registrar's office. However, such a change may entail one or more additional semesters at the university. Area majors are an exception to this rule and must be declared by the fourth semester before graduation (see Area Majors below).

Once a student declares a major, the department or title of the major is noted on the student's transcript, and a faculty adviser in the major department is assigned. Students and their advisers should regularly review progress towards their degrees. Introductory courses taken before formal designation of a major may be counted in fulfilling the major requirements.

For information on the specific requirements for any departmental major, students should consult the departmental listings and seek the advice of a faculty member in the department. It is the responsibility of the student to meet regularly with their advisers to review progress toward their degrees.

AREA MAJORS

Should the traditional departmental majors or programs not meet their exact needs, students may develop an area major closer to their particular interests and career goals. Area majors differ from double majors in that the latter must conform to the requirements of both departments while the former is a single major. It may combine courses from two or more departments, but it maintains its own specific major requirements. Area majors are limited by the available academic resources and must be distinct from other majors offered at Rice. Students who elect to declare an area major may not use it to form a double major, and they must still meet all the other university graduation requirements.

Students are usually the ones to initiate an area major, working it out in conjunction with advisers from the Office of Academic Advising and with faculty advisers from each of the departments involved. After designing a comprehensive and substantial course of study and deciding on an appropriate title, all parties sign off on the plan. The chairs of the involved departments and the Committee on the Undergraduate Curriculum determines final approval. At that point, the Office of Academic Advising officially certifies the approved plan to the registrar and goes on to oversee the major on behalf of the faculty advisers. Any change in the proposed requirements requires the approval of both the faculty advisers and the Committee on the Undergraduate Curriculum.

Interested students who are unsure which departments to approach should check with the Office of Academic Advising during their sophomore year. Students may not propose an area major if they are within three semesters of graduation unless the Committee on Examinations and Standing rules that exceptional circumstances warrant this action. Under no circumstances may students declare an area major in their final semester before graduation.

SECOND FOUR-YEAR BACHELOR'S DEGREE

Currently enrolled undergraduates, Rice graduates with a bachelor's degree, and graduates from other universities with a bachelor's degree have the option of earning a *second* four-year bachelor's degree at Rice in a different discipline. This degree must be a different bachelor's degree from the one already held; for example, the holder of a BA degree may pursue course work leading to the BS or BMus degree. Rice students should note that they can apply courses they completed at Rice as Class III students to the second degree only with the approval of the major department for that degree. (Class III students are students who already have college degrees and are taking courses for credit outside of a Rice degree program.)

Students Already Enrolled at Rice—To earn a second four-year bachelor's degree, also known as a *dual degree*, currently enrolled undergraduates who have not yet completed their first bachelor's degree must:

- Be accepted for the second major by the major department
- Fulfill all requirements for the second degree
- Complete at least 30 additional semester hours at Rice beyond the hours required for their first degree (these hours are applied to the second degree)

Students seeking admission to this program should complete an application for a second degree with the office of the registrar. The application should include a written statement identifying both proposed majors and specifying an approved course program for each. It should also contain an outline from the chair or undergraduate adviser of each department involved, indicating that the proposed course program satisfies all major degree requirements.

Students with a Bachelor's Degree from Rice—Rice graduates who wish to earn a different four-year bachelor's degree must:

- Be accepted for the major by the major department
- Fulfill all requirements for the second degree
- Complete at least 30 additional semester hours at Rice beyond their first bachelor's degree (these hours are applied to the second degree)
- Attend Rice full time for at least two semesters during the fall and/or spring terms beyond their first bachelor's degree

The entire undergraduate record for these students continues cumulatively. Those seeking admission to this program should complete an application for a second degree with the office of the registrar. The application should include a written statement specifying the proposed major and course program for the second degree, a supporting letter from the chair of the major department, and an explanation of the student's reasons for seeking a second degree.

Students with a Bachelor's Degree from Another School—Other graduates who wish to earn a four-year bachelor's degree in a different major from Rice must:

- Be accepted for the major by the major department
- Fulfill all requirements for the second degree
- Complete at least 60 semester hours at Rice (these hours are applied to their Rice degree)
- Attend Rice full time for at least four fall and/or spring semesters

Interested students should apply for admission through the Office of Admission, following procedures and meeting criteria similar to that for transfer applicants (see page 41). A complete application file includes the \$35 application fee, official transcripts of all undergraduate and graduate work, two letters of recommendation from the most recent college attended, and standardized test scores (the SAT, SAT I, or ACT).

Financial Aid and Housing—Students seeking information about financial aid available to participants in the second degree program should contact the Office of Student Financial Services. Students admitted to the second degree program may request assignment to a college, but they will have lower priority for on-campus housing than students enrolled for a first four-year bachelor's program. This means that housing will probably not be available.

HONORS PROGRAMS

To enroll in the two-semester **Rice Undergraduate Scholars Program**, students register for HONS 470-471 *Proposal Development and Research*. This program is for juniors and seniors in all disciplines who are considering graduate study and an academic career after graduation. Students enroll in the program plan and execute independent research under the supervision of a sponsoring faculty member (they may apply for funding to cover expenses related to their projects). They meet once a week to discuss each other's work and to hear a range of presentations on life in academia. Students may apply in the spring of each year. For more information, contact the program's faculty co-director.

Individual departments may offer undergraduates the option of honors program enrollment. These programs enable students to receive advanced training or to deepen their understanding of a given discipline through an intensive program of independent supervised research. Customary procedure is for students to submit a proposed project to their department's Undergraduate Committee, which helps them rework it, as needed, into a substantial but feasible proposal. Once accepted, students are assigned a faculty adviser to guide their research. The project concludes in an honors thesis, which the adviser and two readers evaluate, and an oral examination. Departments also use honors programs to formally recognize students who have shown outstanding work through their individual projects. Acceptance into a departmental honors program is at the discretion of the faculty. For specific requirements and procedures, students should contact the individual departments.

TRANSFER CREDIT

Courses taken at another college or university that are appropriate to the Rice curriculum may be approved for transfer credit toward a Rice undergraduate degree. This includes credit for summer school courses not taken at Rice, though no more than 14 semester hours of transfer credit taken in summer schools other than Rice may be applied to any Rice degree. Students must have taken the course at a U.S. academic institution accredited by a regional accrediting agency or with a study abroad program approved by the Department of International Programs and must have earned a grade of C- or the equivalent or better. Students may not transfer courses taken pass/fail or on a similar basis at other institutions. Courses that meet these requirements will be transferred to Rice by the Office of the Registrar as general credit with the designation TRAN. The Office of the Registrar will distinguish between credits that are upper-level and credits that are not upper level. TRAN credit will count toward the general hours needed for graduation under university requirements and for upper-level credit needed if it is designated by the Office of the Registrar as upper-level credit.

The Office of the Registrar, in conjunction with the academic departments, determines whether courses are appropriate for transfer to Rice as Rice equivalent courses. Individual departments may place additional restrictions on particular courses and/or institutions. Similarly, various majors and degree programs may limit the amount of transfer credit that students may apply to them. If courses transferred to Rice as TRAN credit are subsequently granted Rice equivalent course credit by the Office of the Registrar and academic department, the TRAN credit is reduced by the number of credit hours of the Rice equivalent course. The Rice equivalent is then listed on the student's transcript and satisfies the university and major requirements the Rice course satisfies. Courses may be evaluated for transfer directly as Rice equivalent courses, if appropriate, if the student completes the forms required by the Office of the Registrar. Students also may have to obtain departmental approval.

Because of these restrictions, students are strongly advised to seek prior approval from the registrar for courses for which students plan to receive Rice equivalent credit. The Office of the Registrar may require that students secure approval from the major department to receive Rice equivalent credit. Without prior approval, students cannot be certain that credit taken at another institution will be transferred as a Rice equivalent course and therefore count for major or specific university requirements.

If approved, the equivalent Rice course or the general TRAN credit, as the case may be, is entered on the student's record *after* the Office of the Registrar receives an official transcript from the other college or university. For credits obtained while studying abroad, the Office of the Registrar also must receive the necessary approval paperwork from Rice International Programs before transfer credit may be granted. Students may appeal to Rice International Programs to have credit granted from nonapproved study abroad programs. Such appeals generally should be justified by the curricular needs of the student. In addition, credit from non-U.S. degree-granting universities not part of a study abroad program must be approved by Rice International Programs. Credit is generally determined on a pro rata basis. No grade is entered, and transferred courses have no effect on a student's Rice grade point average.

Students with much transfer credit should be aware of the general graduation requirements (listed on pages 20–23) that they must complete at least 60 semester hours at Rice, complete more than half of their upper-level degree work and more than half of their upper-level major work at Rice (students also should check their specific departmental major requirements).

EXCUSED ABSENCES

Students are expected to be in attendance at all of the classes for which they are registered during the entire course of the academic semester for which they are enrolled. The university understands, however, that students participating in university-sponsored extracurricular activities may, on rare occasions, need to miss a class session. As a matter of course, students should inform their instructors in advance of absences resulting from participation in university-sponsored activities, and faculty will normally give a reasonable opportunity to make up work missed on such occasions. Absences for activities other than university-sponsored events may also be negotiated on an informal basis between the student and the faculty member. Alternatively, absences may be formally excused on a case-by-case basis if a petition explaining the nature of the event, accompanied by suitable documentation, is submitted to the Committee on Examinations and Standing at least two weeks before the event.

FINAL EXAMINATIONS

Most courses include final examinations, but the decision to give a final exam as a required part of the course rests with the instructor and the department. All tests and examinations are conducted under the honor system (see page 8).

Examinations are considered final examinations when they:

- Cover more than the material learned since the last test, or
- Are the only exam in the course, or
- Require comprehensive knowledge of the entire course

Such exams may be given only during the final examination period.

Final examinations are normally three hours long. When instructors, for exceptional reasons, wish to give a longer examination, they schedule it as a take-home exam; even then, they may not exceed five hours. The “due date” for all take-home finals is the end of the final examination period.

University-sponsored events at which student attendance is required may be scheduled in or outside of Houston during the period from Monday through Saturday during the last week of classes, so long as no more than one day of classes and one night would be spent out of Houston from the previous Sunday night through Friday afternoon. Events scheduled on Saturday may involve travel on Friday evening and on Sunday. However, no events may be scheduled on Sunday and thereafter until the conclusion of the final examination period. Exceptions may be authorized only by the Committee on Examinations and Standing.

GRADES (See also Faculty Grading Guidelines on pages 9–10.)

The Pass/Fail Option—Undergraduates may register for courses on a pass/fail basis. Such students:

- May not take more than 1 course as pass/fail per semester for each full year of residence (students studying in off-campus programs through Rice are considered to be in residence for the purpose of this rule)
- May not take more than 4 courses total as pass/fail (even if they are in a five-year degree program)
- May not take more than a total of 14 semester hours total as pass/fail
- May register for only 1 course as pass/fail in a semester
- May not take as pass/fail those courses specifically required for the major or courses falling within the major department or major area. If students take such courses pass/fail, the registrar will replace the P during the final degree audit with the grade earned.

- Must file the proper form for a course to be taken pass/fail no later than the posted deadline, usually the end of the 10th week of the semester

Students may convert a pass/fail course to a graded course by filing the proper form with the registrar. The deadline is by the end of the fifth week of the following semester.

Students should be aware that while a grade of P does not affect their grade point average, a grade of F is counted as a failure and is included into their GPA. Students who take a course during the Rice summer session as pass/fail should also be aware that this counts toward their allowable total of 4 courses.

Grade Symbols—Instructors are required to report a grade for all students (except auditors) whose names appear on the class list. They grade their students using the following conventional symbols: A+, A, A-, B+, B, B-, C+, C, C-, D+, D, D-, F. Students successfully completing a course pass/fail receive a P, and students successfully completing a course satisfactory/fail receive an S; in both cases, failure to complete the course successfully is indicated by an F. Completion of the English composition requirement is denoted by a grade of E.

Satisfactory/fail courses are those that do not use traditional grading procedures. Such courses or labs are designated by the instructor. While an S does not affect the grade point average, an F does.

Students may repeat courses previously taken, but the record of the first attempt (and grade) remains on the transcript, and both grades are included in grade point average calculations. If students repeat courses previously passed, credit is awarded only once unless the course description states that students may repeat it for additional credit. In the latter case, each grade appears on the permanent record and is included in the grade point average.

Grade Designations—Under certain circumstances, special designations accompany the student's grade. These designations do not affect the grade point average. The special designations include the following:

INC ("Incomplete")—Instructors report this designation to the registrar when a student fails to complete a course because of verified illness or other circumstances beyond the student's control that occur during the semester. Students must complete the work, and instructors must submit a revised grade, by the end of the fifth week of the next semester; otherwise, the registrar's office records the grade originally submitted. Students with an "incomplete" must be certain that tests, papers, and other materials affecting their grade or essential to completing a course requirement are delivered *by hand* to the appropriate professor or office with ample time for the instructor to grade the documents and submit the final grade to the Office of the Registrar by the end of the fifth week of the following semester. Loss or lateness because of mail service is not an acceptable excuse for failing to meet academic deadlines. A student who receives two or more "incompletes" in a semester may not enroll in the next semester for more than 14 semester hours. Students should also be aware that they may be placed on probation or suspension when the "incomplete" is changed to a grade, either by an instructor or by default.

OT ("Other")—Instructors report this designation to the registrar when a student fails to appear for the final examination after completing all the other work for the course. Students must resolve the matter, and instructors must submit a revised grade, by the end of the first week of the second semester or by the end of the fourth week after commencement, whichever is applicable. If the registrar's office does not receive a revised grade, the original grade submitted is recorded. A designation of "other" is also used if an accusation has been made to the Honor Council. As noted

above, students should be aware that they may go on probation or suspension when the “other” is changed to a grade, either by an instructor or by default.

W (“Official Withdrawal from University”)—Students who officially withdraw from the university during the last five weeks of the semester will receive a final grade of “W” for each course in which they were enrolled that semester. In addition, the professors of those students who withdraw during that time will submit a grade based on the student’s academic achievement at the time of withdrawal to the registrar. This grade will not be included in the student’s official transcript, but will be stored in the student’s file to be used solely in determining the student’s eligibility for readmission. See Voluntary Withdrawal and Readmission (page 40).

Students who officially withdraw from the university before the last five weeks of the semester will not receive the grade of “W” for any courses in which they were enrolled for that semester. These courses will not be included on the official transcript.

W (“Late Drop with Approval”)—A student who drops a class with special approval from the Committee on Examinations and Standing after the designated drop deadline will receive a grade of “W” for that course. When requests for late drops are denied by the Committee, the registrar records the submitted grade.

If a student drops a class before the designated drop deadline for the semester, the course will not be included on his/her official transcript. Students in their first semester at Rice may drop a class up until the last day of classes, and the course will not be included on the student’s official transcript.

NG (“No Grade”)—This designation indicates that the instructor failed to report a grade. Instructors are responsible for resolving this situation as quickly as possible.

NC (“No Credit”)—This designation signals that no credit was granted for the course. It is only used for people auditing the course.

Grade Points—To compute grade point average, letter grades are numbered as follows:

GRADE	GRADE POINTS	GRADE	GRADE POINTS
A+	4.33	C+	2.33
A	4.00	C	2.00
A-	3.67	C-	1.67
B+	3.33	D+	1.33
B	3.00	D	1.00
B-	2.67	D-	0.67
		F	0.00

Grade Point Average Calculation—For each course, the credit hours attempted in semester hours and the points for the grade earned are multiplied. Then these products (one for each course) are added together, and the sum is divided by the total credit hours attempted. Grade point averages are noted each semester on the student’s official transcripts.

President’s Honor Roll—This honor roll, published each semester, recognizes outstanding students. To be eligible, students must have earned grades in a total of 12 or more semester hours without receiving a grade of F. (Pass/Fail courses may not be counted.) Approximately 30 percent of the top undergraduates receive recognition each semester. While undergraduates enrolled in a four-year bachelor’s

degree program are always eligible for the President's Honor Roll, students enrolled in five-year bachelor's or master's programs are eligible only during their first 8 semesters.

ACADEMIC DISCIPLINE AND OTHER DISCIPLINARY MATTERS

Academic Probation—Students are placed on academic probation at the end of any semester if:

- Their grade point average for that semester is less than 1.67, or
- Their cumulative grade point average is less than 1.67 (this requirement is waived if the grade point average for that semester is at least 2.00)

The period of probation extends to the end of the next semester in which the student is enrolled. Students on probation (academic or disciplinary) may not be candidates for, or hold, any elected or appointed office, nor are they allowed to enroll in more than 17 semester hours.

Academic Suspension—Students are suspended from the university at the end of any semester if they:

- They earn grades that will place them on academic probation a third time, or
- They have a grade point average for the semester that is less than 1.00 (exceptions are made for students completing their first semester at Rice)

Students readmitted after a period of academic suspension will be suspended again, in any succeeding semester, if:

- Their cumulative grade point average is less than 1.67, or
- Their semester grade point average is less than 2.00

The first suspension period is normally one semester; the second suspension period is at least two semesters. Students are not readmitted after a third suspension.

Students who are going to be suspended for academic performance are notified by the registrar after all final grades have been received by the faculty and posted to their record. Suspension is lifted the first day of class of the semester when the student returns to the university. When students serve the nominal term of suspension but do not intend to return to Rice, suspension is lifted after permission from the Committee on Examinations and Standing is granted.

For students facing a first or second academic suspension who verify with the registrar and their department that they will complete their degree requirements in one semester if allowed to return, may have their suspension reduced to probation. Students may invoke this ruling only once for a given academic degree plan.

Students who graduate at the end of a semester under academic circumstances that would normally place them on probation or suspension will not have the terms "academic probation" or "suspension" placed on their transcript for that semester.

Disciplinary Probation and Suspension—The assistant dean of student judicial programs may place students on probation or suspension for an honor system violation or for other disciplinary reasons. Students on disciplinary suspension (including for an honor system violation) may not receive their degree even if they have met all academic requirements for graduation. They must leave the university within 48 hours of being informed of the dean's decision, though in cases of unusual hardship, the college master and assistant dean of student judicial programs may extend the deadline to one week. Any tuition refund will be prorated from the official date of suspension, which is determined by the registrar. While on disciplinary suspension, students may not run for, or hold, any elective or appointed office in any official Rice organization, nor may they serve as an Orientation Week adviser once they return to the university. Participation in student

activities on and off campus and use of Rice facilities, including the student center, the colleges, the playing fields, the gym, and the computer labs, are limited to *enrolled* students.

Readmission after Suspension—Students seeking readmission after **academic suspension** should address a letter of petition to the Committee on Examinations and Standing, in care of the vice president for Student Affairs, which must be received by July 1 for readmission in the fall semester and December 1 for readmission in the spring semester. The petition must include two supporting letters from persons for whom the student has worked during the suspension period as a student or an employee. The petition must also include an academic program approved by the Office of Academic Advising. If the problems causing the previous difficulty appear to be resolved, the student generally is readmitted. Students returning from academic suspension must maintain regular contact with the Office of Academic Advising throughout the semester. In some instances, the committee may postpone approval of readmission or rule that suspension is permanent.

Students seeking readmission after leaving the university because of **disciplinary or other nonacademic action** should submit a petition in writing for review by the assistant dean of Student Judicial Programs.

Rice Summer School—Although it may do so at its discretion, the Committee on Examinations and Standing does not normally place on probation or suspension students who perform poorly in the Rice Summer School. Students should be aware, however, that Rice Summer School grades are included in their grade point averages.

WITHDRAWALS AND LEAVES

Voluntary Withdrawal and Readmission—Students may withdraw voluntarily from the university at any time during the semester up until the last day of classes. Students wishing to withdraw should inform their college master in person and give written notification to the vice president for Student Affairs, who notifies other offices of the university as necessary. Students who fail to give notice of withdrawal should expect to receive failing grades.

If they are in good academic standing at the time of their withdrawal, students are considered for readmission after they submit a written application to the vice president for Student Affairs. That application must include an academic program approved by the Office of Academic Advising. If students withdraw within five weeks of the last day of classes, they must submit the written application to the vice president for Student Affairs, who, at his discretion, will submit it to the Committee on Examinations and Standing. The petition should include two supporting letters and must also include an academic plan approved by the Office of Academic Advising. If students withdraw within five weeks of the last day of classes, the Committee on Examinations and Standing takes into account their grades (which reflects their performance up to the day of withdrawal) when ruling on their readmission. Students whose grades would have led to suspension had they not withdrawn are treated for purposes of readmission, as if they had been suspended. If students voluntarily withdraw for major medical or psychological/psychiatric reasons, however, they must meet the readmission conditions for a medical or involuntary withdrawal.

Involuntary Withdrawal—The university may insist on a student's involuntary withdrawal if, in the judgment of the vice president for Student Affairs, the student:

- Poses a threat to the lives or safety of him/herself or other members of the Rice community
- Has a medical or a psychological problem which is likely to be exacerbated by the academic and/or living environment and the student's ability to address it effectively
- Has a medical condition or demonstrates behavior that seriously interferes with the education of other members of the Rice community

Students should submit written petitions for readmission after medical or involuntary withdrawal to the vice president for Student Affairs. This petition must include documentation of treatment provided and students must have an interview with the director of the Rice Counselling Center or Student Health Services or their designees. The petition must also include an academic plan approved by the office of Academic Advising.

Students who withdraw for psychological reasons within the last five weeks of the fall semester will not be able to petition for readmission for the spring semester immediately following the semester from which they withdrew. They can appeal no later than June 1 to be considered for readmission for the upcoming fall semester.

Unauthorized Withdrawal—Students who leave the university without first obtaining permission to withdraw are considered to have resigned. Although students who resign are not normally considered for readmission, they may petition first the Committee on Examinations and Standing, then the vice president for Student Affairs.

Leave of Absence—Students may request a leave of absence from the university by applying in writing to the vice president for Student Affairs at any time before the first day of classes in the semester for which they are requesting leave. A leave of absence taken after the first day of classes is considered a voluntary withdrawal.

To gain readmission following an approved leave of absence of not more than four semesters, students must notify the vice president for student affairs at least one month before the beginning of the semester that they intend to end their leave. The student must also include an academic plan approved by the office of Academic Advising. After a leave of more than four semesters, they should apply in writing to the Committee on Examinations and Standing.

Approval of a leave of absence is always contingent on the student's satisfactory completion of course work in the semester preceding the leave. Students performing poorly may have their approved leave converted to suspension.

Military Leave of Absence—Students who require a leave of absence because of being called to active military duty should contact the vice president for Student Affairs.

APPLICABLE ACADEMIC GRADUATION REQUIREMENTS

Students enrolled in four- (or five-) year bachelor's programs may decide whether to follow the graduation requirements in effect when they first registered at Rice or those in effect when they graduate. If they graduate more than seven (or eight) years after their initial registration, they must graduate under the regulations in effect at the time of their last readmission or those in effect when they graduate. Also, departments may review courses completed in a major more than seven (or eight) years before the student's anticipated graduation. If the department concludes that a course no longer satisfies the requirements of the major, it is not credited toward the major program, although it remains on the student's record.

Departmental major requirements may vary from year to year during the period between a student's matriculation and graduation. The department may, at its discretion, make any of these variations available to a student for completion of the major requirements. If a new degree program or major is created during the student's time at Rice, the new program will be available to a student as if the program appeared in the General Announcements at the time of matriculation.

NAME CHANGES

To comply with a number of government agencies' reporting requirements, the university must record the name of each student who is a U.S. citizen as the student's name appears on his or her Social Security card. Students who need to change their names on Rice University records and who are U.S. citizens must notify the Office of the Registrar and present a Social Security card, marriage license, divorce decree, or court order and picture identification when submitting the form. After the change is implemented, the name on the Rice University transcript will read as printed on the supporting document(s).

CHANGE IN ENROLLMENT

The academic calendar lists deadlines for dropping or adding a class or section. This schedule is binding for all students. Adding or dropping a course, including transferring from one section to another or changing credit status in a course must be accomplished through completion of the appropriate forms and submission to the Office of the Registrar. Changing a course to/from audit must be done within the first four weeks of the semester.

TRANSCRIPT POLICIES

Transcripts are issued only at the request of the student. Transcript requests should be made at least three working days before the desired date of issue. A \$10 fee per transcript must be received before a transcript is issued.

Transcripts that have been presented for admission or evaluation of credit become a part of the student's permanent record and are not reissued. Transcripts from other institutions, if needed, must be sent to Rice University directly from the original issuing institution.

STUDENT RECORDS

Rice University assures the confidentiality of student educational records in accordance with state and federal laws, including the Family Educational Rights and Privacy Act. Student academic records are maintained primarily in the Office of the Registrar and in the academic department of the student's major, as well as various other offices around campus. All students have the right to review their records to determine their content and accuracy, to consent to disclosures of personally identifiable information as defined by law, and to file complaints with the Department of Education.

RELEASE OF STUDENT INFORMATION FROM EDUCATIONAL RECORDS

The disclosure or publication of student information is governed by policies of Rice University and the Family Educational Rights and Privacy Act.

A student's consent is required for the disclosure or publication of any informational which is a) personally identifiable and b) a part of the educational record. However, certain exceptions to this general rule, both in types of information which can be disclosed and in access to that information, are allowed by the regulations of the Family Educational Rights and Privacy Act. Rice may allow access to personally

identifiable information without a student's prior consent to its faculty or staff who legitimately require this information to perform their instructional, supervisory, advisory, or administrative duties.

In accordance with the law, a student's prior consent is not required for disclosure of portions of the educational record defined by the institution as directory information. The following directory information may be released by the university:

1. Name, local and permanent address, telephone number(s), and email address(es)
2. Date and place of birth and sex
3. Classification and major and minor fields of study
4. Participation in officially recognized activities and sports
5. Weight and height of members of athletic teams
6. Dates of attendance, degrees and awards received
7. The most recent previous educational agency or institution attended by the student
8. Photographic image

The information above, designated by the university as directory information, may be released or published by the university without a student's prior written consent unless exception is made in writing by the student or the parents of a dependent student. Students who prefer to avoid access to or release of directory information must notify the registrar in writing before the end of the second week of fall classes, and the university will withhold access to, or release of, directory information until further written instruction is received.

Students have a right to challenge the accuracy of their educational records and may file written requests to amend these records. The Office of the Registrar should be contacted for further information regarding the procedure to follow for questions or problems.

For complete information regarding the policies outlined above, please contact:

Rice University Registrar
 Rice University
 Office of the Registrar - MS 57
 6100 Main Street
 Houston, TX 77005-1892
 Email: reg@rice.edu

VETERANS INFORMATION

At Rice University, the Office of Veterans Affairs is managed through the Office of the Registrar. This office assists all veterans and their dependents who wish to receive VA educational benefits. The office also provides personal counseling, fee deferments, tutorial assistance, and work-study jobs.

Veterans who are planning to attend the university should contact the Office of Veterans Affairs at least two months before the date of entry. Such time is required to expedite the processing of paperwork for educational allowances from the Veterans Administration.

For certification of benefits, the student must be enrolled according to the following schedule:

Full Time	12 Credits	1/2 Time	6 Credits
3/4 Time	9 Credits	Less than 1/2 Time	5 Credits

For rate of monthly payment of educational allowances for veterans and dependents, please contact Office of Veterans Affairs.

For additional informational regarding other Veterans Educational Programs contact the Office of the Registrar at 713-348-8031 or reg@rice.edu.

APPLICATION FOR GRADUATION

All students must complete an Application for Graduation Form available in the Office of the Registrar. This form is required for all students who plan to complete their degree requirements at the end of the fall or spring semester.

SUMMER SCHOOL FOR COLLEGE STUDENTS

Rice Summer School for College Students, administered by the School of Continuing Studies, offers courses for credit to Rice students, visiting undergraduates, graduate students, and Class III students (see pages 76–77). Two summer sessions are offered: in May and June–July. See Academic Calendar, pages viii–xiii. Taking 6 to 8 semester hours in one session is considered a full load. Interested students should complete the application form found on the summer school website at <http://scs.rice.edu/summercredit>. Admission is automatic for any Rice undergraduate or graduate student in good standing. Visiting students in good standing should send official transcripts, including spring semester grades, (mailed directly from their universities and colleges to the School of Continuing Studies) as well as the completed application. Acceptance in the Rice Summer School carries no implications for regular admission to Rice.

All applicants, including Rice students, should submit their applications to the Rice Summer School Office with the application fee and a tuition deposit. The remaining tuition is due in full at registration before the beginning of classes. Auditors of summer school courses, who are considered visiting students, must pay full tuition and fees. Limited financial aid is available for Rice students only.

It is essential that students apply by the deadlines listed on the summer school website. Courses that do not generate enrollments sufficient to cover their costs may be canceled. Students may apply after the deadline (but before the start of classes) by paying a late fee.

For more information, including tuition and registration information, students should contact the Rice Summer School Office at 713-348-4803, via e-mail at scsummer@rice.edu, or online at <http://scs.rice.edu/summercredit/>.

ADMISSION OF NEW STUDENTS

Dating back to the founding of Rice University, our first president, Edgar Odell Lovett, mandated that we aspire to be a world-class university of the highest standing. Dr. Lovett challenged us “to assign no upper limit to our educational endeavor.” He envisioned students and faculty as a community of scholars, their minds exercised by spirited discourse (John Boles, *A University So Conceived: A Brief History of Rice*, pp 22–23, rev. ed. 1997). Therefore, as an integral part of the University’s mission, we seek a broadly diverse student body where educational diversity increases the intellectual vitality of education, scholarship, service, and communal life at Rice. We seek students, both undergraduate and graduate students, of keen intellect and diverse backgrounds who not only show potential for success at Rice, but who will contribute to the educational environment of those around them. Rice determines which group of applicants, considered individually and collectively, will take fullest

advantage of what we have to offer, contribute most to the educational process at Rice, and be most successful in their chosen fields and in society in general. Our evaluation process employs many different means to identify these qualities in applicants. History shows that no single gauge can adequately predict a student's preparedness for a successful career at Rice. For example, we are cautious in the use of standardized test scores to assess student preparedness and potential. An applicant is considered in competition with all other applicants. In making a decision to admit or award financial aid, we are careful not to ascribe too much value to any single metric, such as rank in class, grade-point average, the SAT/ACT or Graduate Record Exam.

We use a broader perspective that includes such qualitative factors as the overall strength and competitive ranking of a student's prior institution, the rigor of his or her particular course of study, letters of recommendation, essays, responses to application questions, and (where required) auditions and portfolios. Taken together with a student's academic record and test scores, these additional factors provide a sound basis to begin assessing the applicant's potential on all levels.

Beyond indicators of academic competence, we look for other qualities among applicants such as creativity, motivations, artistic talent, and leadership potential. We believe that students who possess these attributes in combination with strong academic potential will contribute to, and benefit from, a more vibrant, diverse educational atmosphere. Through their contributions and interactions with others, students will enrich the educational experience of all faculty and students. These qualities are not revealed in numerical measurements, but are manifest in the breadth of interests and the balance of activities in their lives.

Rice University strives to create on its campus a rich learning environment in which all students will meet individuals whose interests, talents, life-experience, beliefs, and world-views differ significantly from their own. We believe that an educated person is one who is at home in many different environments, at ease among people from many different cultures, and willing to test his or her views against those of others. Moreover, we recognize that in this or any university, learning about the world we live in is not by any means limited to the structured interaction between faculty and students in the classroom, but also occurs through informal dialogue between students outside the classroom.

To encourage our students' fullest possible exposure to the widest possible set of experiences, Rice seeks through its admissions policies to bring bright and promising students to the University from a range of socioeconomic, cultural, geographic and other backgrounds. We consider an applicant's race or ethnicity as a factor in the admission process and believe that racial and ethnic diversity is an important element of overall educational diversity. Though race or ethnicity is never the defining factor in an application or admissions decision, we do seek to enroll students from underrepresented groups in sufficient and meaningful numbers as to prevent their isolation and allow their diverse voices to be heard. We also seek students whose parents did not attend college, as well as students from families with a well-established history of college-level education. Rice places a premium on recruitment of students, regardless of their races or ethnicities, who have distinguished themselves through initiatives that build bridges between different cultural, racial and ethnic groups. In so doing, we endeavor to craft a residential community that fosters creative, inter-cultural interactions among students, a place where prejudices of all sorts are confronted squarely and dispelled.

In assessing how well an applicant can contribute to enlivening the learning environment at Rice, we also try to determine the relative challenges that he or she may have faced. For economically disadvantaged students, this may mean achieving

a high level of scholastic distinction while holding down a job in high school. For a first generation student, it might mean achieving high standards for academic success within an environment relatively indifferent to intellectual attainment. Or it might mean overcoming a disability to excel in sports, music, or forensics. For students who do not have particular disadvantages, we also look at whether they chose a more challenging road than the normal path through high school. This might mean an especially strenuous course of study, a prolonged, in-depth engagement in a school project, or a particularly creative and wide-ranging set of extracurricular activities.

Rice does not view offers of admission as entitlements based on grades and test scores. Our admission process combines an examination of academic ability with a flexible assessment of an applicant's talents, experiences and potential, including potential diversity contributions; it precludes any quick formula for admitting a given applicant or for giving preference to one particular set of qualifications without reference to the class as a whole. Rice is a highly selective institution, and receives many more applications from viable candidates than it has available spaces. An inevitable consequence of Rice's approach is that some highly accomplished students will not be admitted. However, by selecting a wide range of matriculants of all types, the admissions process seeks to enrich the learning environment at Rice, and thus improve the quality of a Rice education for all students.

Due to the nature of the Rice education, Rice enrolls undergraduate degree candidates on a full-time basis only. **First-year applicants, architecture applicants, and international students may apply for the fall semester only.** Other applicants may apply to enter either the fall or spring semester.

Applicants are selected on a competitive basis in six academic divisions: architecture, engineering, humanities, music, natural sciences, and social sciences. Candidates should give careful consideration to the category under which they wish to be considered. However, once enrolled, most students are able to move freely among most divisions after consultation with their advisers. Music students must pursue the music program for at least the first year before changing divisions. The Schools of Music and Architecture maintain limited enrollments; all majors are subject to faculty approval.

Those offered admission are expected to complete the remainder of their high school courses with the same superior performance that led to their admission.

FIRST-YEAR APPLICANTS

There are four areas of focus generally used in evaluation of first-year candidates for admission: scholastic record as reflected by the courses chosen and the quality of academic performance, recommendations from high school, the application presentation of personal information and essays, and standardized testing (SAT I or ACT and three subjects from the SAT II).

The High School Record—Students must complete at least 16 college preparatory units as follows:

English	4	Laboratory science (e.g., biology, chemistry, physics)	2
Social studies	2	A foreign language	2
Mathematics	3	Additional credits in any of the categories above	3

The natural science and engineering divisions require trigonometry (pre-calculus) or other advanced mathematics courses and both chemistry and physics. Students may substitute a second year of chemistry or biology for physics.

Students admitted with academic deficiencies will be asked to complete the required work by taking high school or college-level courses during the summer before enrollment at Rice.

Note: Because of the admission competition to enter Rice, successful applicants generally have taken 20 or more college preparatory courses, many at the college level. Therefore, only those students who have more than 20 college preparatory courses may have the registrar consider for Rice credit their college courses taken in high school.

Transfer of Coursework Taken During High School—College-level courses taken during high school years may be considered for credit at Rice University on receipt of the following documentation:

1. An official transcript of all college courses sent directly from the college(s) attended. No college-level courses that appear only on the high school transcript will yield credits at Rice.
2. From each college attended, official verification that all courses were taken on the college campus, were taken together with students at that college, were taught by regular members of the college faculty, and were a part of the normal curriculum of the college. This type of documentation is normally obtained from the registrar's office of each college.
3. Official notification by letter from the high school principal or guidance counselor that the credit earned was not used to meet high school diploma requirements.

Recommendations—Candidates must submit evaluations from their guidance counselor and one teacher. The necessary forms are included in the application.

The Application—The application provides the committee with important information on the student's background and gives the applicant an opportunity to provide statements on his or her interests, experiences, and goals. Both the Rice application and the Common Application are accepted. *The application fee is \$50.* Students for whom this fee creates a hardship may apply for a waiver. Freshman applicants should provide proof of a fee waiver for the SAT I or ACT test or eligibility for the school lunch program. In any case, a letter from the student's high school counselor is required. Financial stress created by application fees to other institutions is not considered a valid reason to grant a fee waiver.

Standardized Testing—The SAT I or ACT and three subject exams from the SAT II are required for admission. All applicants must submit three SAT II tests: one in writing and two others in fields related to the candidate's proposed area of study.

These exams are administered by the College Board and the American College Testing Program. Bulletins and test registration forms are available from high school counseling offices. The applicant is responsible for arranging to take the tests, and official score reports must be submitted before the student can be considered for admission. The College Board code for Rice is 6609. The ACT code is 4152.

Personal Interview—Although a personal interview is *not a requirement*, we *recommend* an interview for first-year applicants as an excellent opportunity to discuss the applicant's interests, needs, and questions. On-campus interviews are conducted by the admission staff and a select group of Rice senior students. Also, off-campus interviews are conducted throughout the United States by Rice alumni. Please consult the university websites or the application packet, or call the admission office for details.

Music Audition—Candidates to the Shepherd School of Music must arrange for an audition with a member of the music faculty.

Architecture Portfolio and Interview—Architecture applicants must submit a portfolio. An interview with a faculty member from the School of Architecture is strongly recommended.

Bachelor of Fine Arts Portfolio—Applicants to the Bachelor of Fine Arts program must submit a portfolio to the Department of Visual Arts for faculty review before admission is finalized.

DECISION PLANS

Early Decision Plan—Early Decision is designed for students who have selected Rice as their first choice. Students may initiate applications to other colleges but may make a binding Early Decision application to one college only.

Early Decision applicants must complete the required standardized testing on or by the October testing dates in the senior year. All other materials should be postmarked by November 1. Admission notices will be mailed by December 15. The committee will admit, defer, or deny Early Decision applicants. Deferred applicants are considered with the Regular Decision pool, and seventh-semester grades and additional standardized test scores will then be considered.

It is important to note that if admitted under Early Decision a candidate must withdraw all other college applications, may not submit any additional applications after accepting the offer, and must accept Rice's offer of admission by submitting a \$100 nonrefundable deposit by January 3. An additional \$50 housing deposit is required of those desiring on-campus accommodations.

Those accepted under Early Decision may receive an estimate of need-based financial aid by registering for the College Scholarship Service (CSS) PROFILE by October 1, and sending the PROFILE packet to CSS by November 1. Register for the CSS PROFILE by visiting their website at www.collegeboard.com. Students will complete the PROFILE online. The PROFILE number for Rice is 6609. Note that **official** financial aid offers may be made only after the Office of Student Financial Services has received the following documents:

- CSS PROFILE, priority date February 1
- Free Application for Federal Student Aid (FAFSA), priority date February 1
- Student and parent 2004 income tax and W-2 forms, priority date March 1

Interim Decision Plan—First-year applicants who complete their standardized testing on or before the December testing dates and who postmark all other materials by December 1 may be considered under the Interim Decision Plan. Decisions are mailed by February 10. The committee will admit, defer, or deny Interim Decision applicants. Deferred applicants are considered with the Regular Decision pool, and seventh-semester grades and additional standardized test scores will then be considered.

Interim Decision applicants who are offered admission must pay a \$100 registration deposit by May 1 to reserve a place in the incoming class. After May 1, deposits are not refundable. Those who desire a room on campus must pay an additional \$50 deposit.

Regular Decision Plan—Students who apply Regular Decision must postmark their materials by January 10 to receive notification by April 1. Candidates who miss the deadline must do so in full knowledge that they are in a less competitive position. Regular Decision applicants must complete their standardized tests by February.

Regular Decision applicants who are offered admission should submit a \$100 registration deposit by May 1 to reserve their places in the incoming class. After May 1, deposits are not refundable. Those who desire a room on campus must pay an additional \$50 deposit.

ACCELERATED STUDENTS

Rice University will accept applications from students who are completing high school in less than four years. It is important to note that these students will compete with other candidates who will be completing four years of high school. Therefore, it is the candidate's responsibility to demonstrate that he or she has exhausted *all* college preparatory course work at his or her school. Further, because of the residential focus and commitment to student self-governance at Rice, candidates must also demonstrate the maturity and personal development that would allow them to participate fully and responsibly in campus life. Because of the unique circumstances surrounding the accelerated student, it is strongly recommended that these candidates have an on-campus interview before the application deadline.

HOME-SCHOOLED APPLICANTS

The Committee on Admission and Financial Aid recognizes that each home-schooled applicant is in a unique educational program. To ensure that our evaluation process is fully informed, each home-schooled applicant is encouraged to provide clear, detailed documentation of his or her curriculum of study, assessment tools, and learning experiences. Rice requires two academic letters of recommendation from all applicants, and at least one of these letters must come from someone who is not related to the applicant.

BACHELOR OF FINE ARTS

Students with a bachelor's degree in art from Rice or an equivalent degree from another university may apply to enter the BFA program, which consists of a fifth year of intensive study in the creative arts. In exceptional cases, students with a BA in a major other than art may be admitted. BFA students are considered on a space-available basis. The following items should be *received* by November 1 for spring term enrollment or May 1 for fall term enrollment.

Required application materials include:

- A \$50 application fee
- Official transcripts of all undergraduate and graduate work
- Official final high school transcript
- Two letters of recommendation from professors at the most recent college attended
- Dean of students recommendation from the most recent college attended
- SAT I or ACT scores
- The complete application for bachelor of fine arts degree candidates
- Portfolio of artwork

The portfolio of artwork must include 15 slides of original paintings, drawings, sculpture, and prints, and/or film/video. Submission is limited to a binder or folder no larger than 9" x 12" x .5" or placed in a standard-view sleeve 20 slide capacity. Slides of artwork should be properly labeled (at the top of the individual slide) with name, title, medium, dimensions, and date(s), and submitted in clear plastic. Do not submit anything you wish returned.

All BFA students attending Rice are full-time students; most classes are held Monday through Friday. Financial aid and campus housing are not available for BFA students.

TRANSFER STUDENTS

Students with superior records from two-year or four-year colleges or universities may apply as transfer candidates. Applicants for transfer admission must file the following with the Office of Admission:

- The written application
- Official transcripts of all high school and college work completed to date as well as courses in progress
- Two faculty recommendations
- A recommendation from the dean of students
- SAT I or ACT scores
- A \$50 application fee

Applications with the appropriate documents must be postmarked by March 15 for fall term admission and October 15 for spring term admission. Notification of the admission decision is mailed by May 15 and December 15, respectively. The criteria used in evaluating transfer applications are similar to those applied to applicants for the first-year class, except that special emphasis is given to performance at the college level. Because of the highly competitive nature of transfer admission, it is recommended that applicants have a minimum 3.20 (4.00 scale) grade point average on all college work. The SAT I or ACT must be taken by March 15 for fall application and October 15 for spring application. The SAT II is not required.

Students for whom the \$50 application fee creates a hardship may apply for a waiver. Transfer applicants must send a copy of the Student Aid Report that they receive after completing the Free Application for Federal Student Aid (FAFSA) along with a request for a fee waiver to the Office of Admission. Financial stress created by application fees to other institutions is not considered a valid reason to grant a fee waiver.

Transfer students must be registered in residence at Rice for at least four full semesters during the fall or spring terms and must complete no fewer than 60 semester hours before earning a Rice degree.

ADVANCED PLACEMENT/INTERNATIONAL BACCALAUREATE/PLACEMENT TESTS

Students who score a 4 or 5 on the applicable Advanced Placement College Board examinations taken before matriculation at Rice are given university credit for corresponding Rice courses.

Students who complete the International Baccalaureate diploma and receive a score of 6 or 7 on a higher-level IB exam will also receive course credit for the appropriate course.

Furthermore, during Orientation Week, entering students may take placement tests administered by various departments at Rice. On the basis of these tests, students may be advised to register for courses beyond the introductory level. In most cases, credit is not given for these tests.

OTHER STUDENTS

Please note that financial assistance is not available for visiting, Class III, BFA, second degree, dual enrollment, or auditing students.

Visiting Students—Students who wish to spend a semester or a year at Rice taking courses for credit to be applied toward their undergraduate degree at another school may apply for admission as visiting students through the Office of Admission. The student's application should be accompanied by the \$50 application fee, an official high school transcript, an official transcript of college work to date, an SAT I (SAT) or ACT score, and recommendations from the dean of students and a faculty member who has taught the student within the past academic year. Visiting student applications should be postmarked by March 15 for the fall semester and October 15 for the spring semester.

Visiting students are assigned membership to one of the residential colleges during their stay and are charged the same fees as other undergraduates. In a few classes where enrollment is limited because of space or other considerations, candidates for Rice degrees have priority over visiting students for registration.

Visiting students may apply to transfer to Rice only after having left Rice for at least one semester.

Class III Students—Students with Class III standing at Rice have an undergraduate or graduate degree from an accredited college or university and are taking courses at Rice for credit but not in a specific degree program. Students interested in this program should contact the Office of Graduate Studies.

Second Degree Students—An individual who has a bachelor's degree from another institution and desires another degree in a different area of focus may apply as a second degree student on a space-available basis. Students may only pursue a second degree that is different from their first degree. The application, a \$50 application fee, official transcripts of all undergraduate and graduate work, two faculty letters of recommendation and a recommendation from the dean of students from the most recent college attended, and standardized test scores (the SAT, SAT I, or ACT) are required to complete an application file. The deadline for fall semester admission is March 15 and the deadline for spring is October 15.

Second degree applicants with a prior bachelor's degree from Rice should apply to the registrar. The application should include a written statement specifying the proposed major and course program for the second degree, a supporting letter from the chair of the major department, and an explanation of the student's reasons for seeking a second degree.

Dual Enrollment Students—Accelerated high school juniors and seniors who have taken all the courses in a given discipline available to them in high school may request admission to Rice for the purpose of taking one or more university-level courses as dual enrollment students. The written application, application fee of \$50, high school transcript, a teacher and a counselor recommendation from the applicant's high school, and an SAT I or ACT score should be sent to the Office of Admission by June 1 for the fall semester or by December 1 for the spring semester. Home-schooled students must demonstrate that they have exhausted all other community resources before applying for dual enrollment at Rice. All dual enrollment students are limited to two courses per semester at Rice.

Tuition for new students is \$848, per semester hour plus a \$110 registration fee, the total not to exceed \$10,175. Tuition for returning dual enrollment students would be the rate (plus inflation) at which they first took dual enrollment courses at Rice. These charges are for the 2004–2005 school year and are subject to change in subsequent years. Financial assistance is not available for this program.

Auditors—Any interested person, including currently enrolled students, may audit one or more courses at Rice by securing permission of the instructor and by registering as an auditor with the registrar. The university grants no academic credit for such work. Audit credit does not appear on transcripts. Currently enrolled students may audit courses without charge. Rice alumni are charged a fee of \$275 per course per semester. All others are charged \$545 per course per semester for the privilege of auditing. Request to audit a class or to change from audit to credit or vice versa must be done by the end of the fourth week of the semester.

TUITION, FEES, AND EXPENSES

Charges for tuition, fees, and room and board are billed to students each semester. Students may pay the charges in full by the due date or in installments over the

course of the semester. The fall semester due date is August 1 for freshmen and mid-August for all others, and the spring semester due date is the first week of January. The following costs apply to undergraduates in the 2004–2005 school year:

Tuition	Annual	Semester	Hour³
Entering first-year and transfer students	\$20,350	\$10,175	\$848
Students matriculating in 2003–2004 ¹	19,200	9,600	800
Students matriculating in 2002–2003 ¹	18,300	9,150	763
Students matriculating in 2001–2002 ¹	17,600	8,800	734
Students matriculating in 2000–2001 ²	17,500	8,750	730
Students matriculating in 1999–2000 ²	17,250	8,625	720

¹ Tuition indexed for five years from year of matriculation

² Tuition indexed for six years from year of matriculation

³ By special permission only

Required Fees	Fall	Spring	Annual
Student activities ⁴	\$ 86.30		
Athletic events	110.00		
College	50.00		
Student health	170.00	\$170.00	
Shuttle	50.00		
Information technology (on-campus)	110.00	110.00	
Total fees	\$576.30	\$280.00	\$856.30
Information technology (off-campus)	\$ 60.00	\$ 60.00	
Newspaper	9.00		

⁴ Fifth-year students in professional degree programs and students working toward a second bachelor's degree may pay a reduced student activities fee of \$13.70, which covers the Student Association Student Organizations Activity, University Court, and Honor Council portions of the activity fee, and elect not to pay the college fee.

Room and Board	Annual	Semester
Room	\$5,200.00	\$2,600.00
Board	3,180.00	1,590.00
Telecommunication	142.00	71.00

Any undergraduate who withdraws or takes an approved leave of absence and then gains readmission to the university pays the tuition applicable at their matriculation, plus annual Consumer Price Index increases for a period not to exceed six years. Starting with fall 2001 matriculants, the index period is not to exceed five years. After five/six years, students pay the tuition applicable to the entering class. Indexing does not apply to classes entering after spring 2003.

REFUND OF TUITION AND FEES

Students who withdraw during the first two weeks of the semester are not charged tuition or fees for that semester. Students who withdraw during the third week must pay 30 percent of the semester's tuition, receiving a 70 percent refund. The amount of the refund drops by 10 percent at the beginning of each successive week that passes before withdrawal until the ninth week, after which no refund is made. Federal regulations require a refund calculation for all students receiving Title IV funds. The length of time during which a refund must be calculated is up to 60 percent of the payment period (semester). If a student withdraws on or before the 60 percent point in time, a portion of the Title IV funds awarded to a student (Pell

Grant, Federal SEOG, Federal Perkins Loan, Federal Direct Subsidized, Unsubsidized, and Federal PLUS Loans, and the Texas LEAP Grant) must be returned, according to the provisions of the Higher Education Act as amended. The calculation of the return of these funds may result in the student owing a balance to the university and/or the Department of Education.

For students withdrawing after the second week of classes in a semester, fees or special charges (see page 46) are not refunded. Similarly, students withdrawing or taking leaves of absence in the spring semester do not receive a partial refund of fees paid for the full year. Students withdrawing at any time forfeit the \$100 enrollment deposit they paid as incoming students.

Students who receive approval to enroll with a course load of fewer than 12 hours during the first nine weeks of the semester may be entitled to a tuition rebate based on the same refund schedule used for withdrawing students. Any such rebate depends on the actual date by which the registrar's office processes the relevant drop form.

Students unable to resolve with the cashier's office any request for special consideration in connection with waivers, refunds, or adjusted payments on tuition, fees, and other charges should forward their appeals to the vice president for student affairs. Exceptions are granted by the vice president of Student Affairs only under extraordinary circumstances. Resolution of waivers and refunds for room and board charges require the approval of the vice president for finance and administration.

LIVING EXPENSES

Residence fees cover dining hall costs and residence maintenance. They are established each year as needs dictate. For 2004–2005, the annual room and board charge for residence in a residential college is \$8,380. This charge includes the room and all the meals eaten during the year.

Housing—About 77 percent of Rice undergraduates live in the on-campus residential colleges. Information about the residential colleges and room application forms accompany the notice of admission sent to each new undergraduate. Room reservations cannot be made before notification of admission. Further information on housing in the residential colleges is available from the Office of Student Affairs, and information on off-campus housing is provided by the Office of Academic Advising.

When they receive their residential college room assignments for the academic year to follow, students must sign a housing agreement. To reserve their space, current students must sign a housing agreement by the date established in their respective colleges but no later than April 15. New students must make a \$50 deposit before May 1. These nonrefundable deposits are applied to the following semester's room and board charges.

Board—Meals are served cafeteria-style and are all-you-care-to-eat. The colleges provide three meals per day Monday through Friday, breakfast and lunch on Saturday, and lunch and dinner on Sunday. Meals are not served during the Thanksgiving holiday, at the mid-year break, over the fall and spring mid-term recesses, and during spring holidays. More information is available from the Residential Dining web site (<http://food.rice.edu/index.html>).

Payments and Refunds—Students may pay their residence fee in installments. The exact amounts and due dates appear in the Residential Housing Agreement. Students moving out of the college for any reason receive a refund (or a credit) of the reduced balance of room and board charges but must still pay a termination

processing fee. Possible exceptions such as academic suspension, Rice-sponsored study abroad, and family emergencies are treated on a case-by-case basis.

SPECIAL CHARGES

The following charges are separate from the regular fees. For charges because of late registration or course changes made after the deadlines, see Registration (pages 21-24).

Preceptorship per semester	\$200
Internship per semester	200
Enrollment continuance fee (Study Abroad) per semester	125
Newspaper fee	9
Telecommunications fee (on-campus students) per semester	71
Late payment penalty	135
Undergraduate application fee	50
Part-time registration fee	110
Orientation Week room and board	225
Orientation Week room and board (coordinators)	165
Late registration fee	105
Failure to register fee	55
Deferred payment plan late fee	35
College withdrawal: suspension	100
College withdrawal: breaking of lease	700
Diploma fee: sheepskin	100
Diploma fee: parchment	35
Diploma fee: facsimile	15
Diploma mailing fee: domestic	22
Diploma mailing fee: air mail	27
Transcript fee	10
Replacement ID	10
Freshman parking permit (minimum)	275

HEALTH INSURANCE

All Rice students must have health insurance. Students may purchase insurance for the 2004-2005 school year through the university program developed for Rice students at a yearly premium of \$1,335 (Plan A) or \$975 (Plan B). Coverage is effective from 12:01 A.M., August 15, 2004, until 12:01 A.M., August 15, 2005. Dependent coverage is also available. A description of the policy, application form, and waiver form can be found on the Web at <http://studenthealthinsurance.rice.edu>. Student should submit either the application or waiver by August 15 each year.

EDUCATION CERTIFICATION PROGRAM FEES

Students enrolling in the student teaching apprenticeship or internship plans must pay a \$200 registration fee for each semester. An additional \$25 fee (paid to the School of Continuing Studies) is due for each summer school session.

DELINQUENT ACCOUNTS

No student in arrears of any financial obligation to Rice as of the last day of registration for any semester can register for classes. The university will not issue certificates of attendance, diplomas, or transcripts at any time for a student whose account is in arrears.

Students who have not made satisfactory arrangements with the cashier for payment of current charges or who have moved on campus without a proper room contract may be dismissed from the university.

TRANSCRIPTS

Transcripts are issued on written request to the Office of the Registrar. The registrar does not issue transcripts without the consent of the individual whose record is concerned. The charge of \$10 for each copy is payable in advance. Those requesting transcripts by mail should include payment with the request.

FINANCIAL AID

The financial aid programs at Rice provide assistance to meet demonstrated need for university attendance for all admitted students. Through grants, endowments, low-interest loans, campus work opportunities, or a combination of these programs, Rice makes every effort to provide students and families assistance to meet their educational expenses. The financial aid program receives funding from many sources. Rice uses contributions from alumni and friends to establish and maintain scholarships and loan funds. Federal and state grant, work, and loan programs also provide funds. Awards are based primarily on financial need and a computed Expected Family Contribution (EFC), although there are also attractive loan opportunities for students and families who demonstrate no need.

The university determines need for first-time students by having them complete the College Scholarship Service (CSS) PROFILE. Students register for CSS PROFILE by visiting their website at www.collegeboard.com. Students will complete the PROFILE online. The PROFILE number for Rice is 6609. First-time students also complete the Free Application for Federal Student Aid (FAFSA) and submit copies of student and parent income tax and W-2 forms.

The university determines need for continuing students by having them complete the FAFSA and the Rice Financial Aid Application; continuing students also submit student and parent income tax and W-2 forms. Returning students are not required to complete a PROFILE form.

"Need" is the amount required to meet the difference between each student's basic educational expenses and his or her family's resources. Parents are expected to contribute according to their financial means, taking into account income, assets, home equity, number of dependents, and other relevant factors. Students are expected to contribute as well from their own assets and earnings, including appropriate borrowing against future earnings.

The brochure *Financing Your Education* explains the assistance programs in detail. Copies are available from the Office of Admission.

NEED-BASED APPLICATION PROCESS

Rice University is a need-blind school. Applicants are admitted to the university regardless of their family's ability to pay for college. Rice will meet 100% of demonstrated financial need as determined by university calculations.

Rice considers applicants for all appropriate assistance administered by the university, including grants, scholarships, loans, and work. Students receive notification of an offer once their financial aid files are complete. Student Financial Services provides financial assistance only for coursework sponsored through Rice University.

To apply for financial assistance, first time students (including Early Decision students) must submit the following:

- CSS PROFILE, priority date February 1
- Free Application for Federal Student Aid (FAFSA), priority date February 1
- Student and parent income tax and W-2 forms, priority date March 1

Continuing students must submit the following:

- FAFSA, priority date April 15
- Rice Financial Aid Application, priority date April 15
- Student and parent income tax and W-2 forms, priority date April 15

DECISION

Financial aid offers are made annually. Award amounts are specified in the Financial Aid Offer Letter. Because financial circumstances change from year to year, Rice conducts an annual review of need and offers aid accordingly. For this reason, continuing students must complete and return the Rice University Application for Financial Aid to the university and file the FAFSA every year that they seek assistance.

The university, from time to time, may adjust its methods of computing financial need or its policies regarding the types of financial assistance that it offers so as to meet the financial needs of the largest possible number of students. Therefore, the amount and type of financial aid may change from year to year, even when the student's financial situation appears to remain relatively stable.

TYPES OF FINANCIAL AID AND ASSISTANCE

Need-Based Scholarships/Grants—Various need-based scholarships and grants are awarded to assist students with demonstrated need.

Merit Scholarship—Merit Scholarships are offered through the Office of Admissions to incoming students. Merit scholarships may only be used for coursework sponsored by Rice University. Should a student with a merit award graduate early, unexpended merit funds will not be granted to the student.

Student Loan Funds—To assist students and parents with educational financing, the Office of Student Financial Services participates in the following programs:

- **Stafford Student Loans**—These are low-interest loans made to students attending school on at least a half-time basis. Subsidized Stafford loans require need-based financial aid eligibility, but unsubsidized Stafford loans are available to all students.
- **Parent Loans for Undergraduate Students (PLUS loan)**—The PLUS loan is a low-interest loan to parents or legal guardians of dependent undergraduate students. Eligibility is not based on demonstrated financial need.
- **Federal Perkins Loan Program**—These are low-interest loans made to students attending school on at least a half-time basis and who demonstrate high need.

A few endowments for student loans have been established at Rice primarily as memorial tributes. These funds exist separately from the normal financial aid program. Rice uses them to make small emergency loans to students experiencing unexpected financial problems or showing additional need beyond regular eligibility.

All requests for these loans must be submitted to the Office of Student Financial Services.

Student Employment Programs—Opportunities for employment are available to students, either on or off campus, during the academic year. Students are eligible to work under the Federal Work-Study Program or the Rice University Work Program. Students interested in employment should access the Student Financial Services webpage at <http://www.ruf.rice.edu/~fina/employment.htm>.

Deferred Payment Plan—Rice offers a deferred payment plan to enable families to finance students' educational costs. This plan divides each semester's charge over

four installments. Applications and details are available to eligible students each semester at the time of billing. Students arrange for deferred payment through the Cashier's Office.

Summer Aid—Students who have not exceeded 10 semesters at Rice are eligible to apply for summer aid. The only aid available during the summer session are loans. The deadline to apply for summer aid is April 30.

VOCATIONAL REHABILITATION

The Texas Rehabilitation Commission (TRC) provides assistance in paying tuition and nonrefundable fees for students who have certain disabling conditions. Once a TRC counselor approves their vocational objectives, students affected by orthopedic deformities, emotional disorders, diabetes, epilepsy, heart problems, and other disabling conditions are eligible for assistance. The TRC offers a range of services to help handicapped students become employable. Interested students should apply to the Texas Rehabilitation Commission.

Students with visual handicaps should contact the Texas State Commission for the Blind.

FINANCIAL AID ELIGIBILITY

Undergraduate students are eligible to apply for need-based Rice sponsored and federal/state/private aid during the first 8 semesters at Rice; for transfer students the number of semesters is prorated based on the number of hours transferred. If a student is enrolled beyond eight semesters, the student may apply for federal/state/private aid for an additional two semesters. (Architecture students may apply for Rice sponsored aid for two semesters following their preceptorship to complete the Architecture degree.) If a student attends part-time during a semester or withdraws during a term, the semester is counted towards the number of semesters aid is available.

SATISFACTORY ACADEMIC PROGRESS

The Higher Education Act of 1965, as amended by Congress, mandates that institutions of higher education require minimum standards of "satisfactory academic progress" for students to be eligible to receive financial aid.

To remain in good standing, an undergraduate student must meet the following qualitative and quantitative standards:

Qualitative—A student must earn a minimum term GPA of 1.67 for each term enrolled at Rice University.

Quantitative—By the end of each academic year, a student must have earned a minimum of 24 credits. If a student were enrolled for only one term, the student must have earned a minimum of 12 credits.

If a student fails to meet either standard, the next term the student is enrolled the student will be granted aid on a probationary status. During a term in which a student is on financial aid probation, the student must complete a minimum of 12 credits and must earn a term GPA of 1.67 to be considered in good standing and to be eligible to receive aid for the next term enrolled. If a student on financial aid probation does not complete these requirements, then the student's financial aid eligibility is terminated.

Appeal—A student whose aid eligibility has been terminated after one semester of financial aid probation may submit an appeal in writing to Student Financial Services for a second term of financial aid probation. If during that second probation term the student fails to complete 12 credits and earn a term GPA of 1.67, the

student's aid eligibility is terminated, and the student may not appeal for another probationary aid term. In order to regain aid eligibility, the student must complete 12 credits in one term with a 1.67 term GPA (or 2.0 GPA at a school without weighted grades) using resources other than aid offered through Rice University to pay affiliated charges.

Financial Aid After Suspension—Students who have been suspended by the University for academic reasons need to be aware that if they are readmitted by the Committee on Examinations and Standing they may not be eligible for financial aid based on their prior academic performance. Students who are petitioning for readmission are advised to contact Student Financial Services to determine their aid eligibility.

RETURN OF TITLE IV FUNDS

Students who receive federal funds as part of their aid packages and do not complete the academic term may be subject to returning a portion of those funds. Contact Student Financial Services for information about "Return of Title IV Funds" policies and procedures.

HONOR SOCIETIES

Honor societies at Rice include the following:

Phi Lambda Upsilon—national honorary chemical society promoting high scholarship and original investigation in all branches of pure and applied chemistry (Rice chapter: 1926)

Phi Beta Kappa—founded in 1776 at the College of William and Mary to recognize intellectual achievement and the love of learning among students in the liberal arts and sciences (Rice chapter: March 1, 1929)

Pi Delta Phi—organized to interest French students in competing for high standing in scholarship (Theta chapter at Rice: May 1930)

Society of Sigma Xi—for the promotion of research in science (Beta of Texas chapter at Rice: March 23, 1938)

Tau Beta Pi Association—organized to interest engineering students in competing for high standing in scholarship (Gamma of Texas chapter at Rice: December 18, 1940)

Delta Phi Alpha—to promote an interest in the German language and literature (Gamma Xi chapter at Rice: April 1949)

Sigma Delta Pi—to promote an interest in the Spanish language and literature (Rice chapter: May 14, 1953)

Tau Sigma Delta—national honor society in architecture and applied arts (Tau chapter at Rice: May 7, 1961)

Eta Kappa Nu—founded in 1904 at the University of Illinois for electrical engineering students, to stimulate and reward scholarship as well as assist and encourage its members to grow professionally throughout their lives (Rice chapter: January 1981)

Omicron Delta Epsilon—to promote study in economics (Rice chapter: 1981)

Psi Chi—founded in 1929 at Yale University to encourage, stimulate, and maintain excellence in scholarship and to advance the science of psychology (Rice chapter: April 23, 1990)

UNDERGRADUATE STUDENT LIFE

RESIDENTIAL COLLEGES

All undergraduate students at Rice, whether they live on campus or not, are members of one of nine residential colleges. All colleges are coeducational.

Each college has faculty masters who live in a house next to the college. Reporting to the vice president for student affairs, the masters have overall responsibility for all aspects of student life in the college, especially for encouraging broad cultural and intellectual interests and for promoting self-discipline and effective self-government within the college. Upon agreement, the students and masters invite other members of the Rice faculty to become resident and nonresident associates of the college. Faculty associates act as advisers to the students and participate in the various activities of the college. Colleges also have nonfaculty university associates and community associates drawn from various professions in the Houston area.

Each college exists as a self-governing group of students. The elected officers and representatives are responsible to the masters and to the college membership for:

- Directing the college's cultural, social, and athletic activities
- Expenditure of college funds
- Maintaining order in the college

While uniformity among the colleges has never been sought and each college has developed its own particular interests and character, all seek to foster fellowship among their members and a mature sense of honor, responsibility, and sound judgment.

College Assignment—Each undergraduate, upon acceptance by the university, is designated a member of one of the colleges. Two students entering Rice for the first time may request assignment to the same college, but they may not designate which college. New students may also request membership in the same college as a close relative. Except for these cases, students have no individual choice of college.

Room and Board—College buildings include a dining hall and public rooms, which are available to both resident and nonresident members, and living quarters for approximately 215 students from all classes and all academic disciplines.

At present, Rice has room in its on-campus residential colleges for about 75 percent of its undergraduate students. Although most of the students who want to live in the colleges can be accommodated, demand usually exceeds the available number of rooms. The university makes every effort to provide housing in the colleges for all incoming first-year students who wish to live on campus, but space cannot be guaranteed. Continuing students draw for rooms according to the priority system established in each college. No student is required to live on campus; however, those members of the colleges who live off campus are encouraged to eat in their colleges and to participate in college activities.

The College Food Service provides à la carte meals, with the exception of prepaid dinners. Its other services include:

- Assistance with special diets prescribed by a physician
- Sack lunches for students who must miss a meal due to a job conflict
- Sick trays for students when requested by the Student Health Service
- Alternate menu entrées, whenever possible, to accommodate students' religious practices

For more information on room and board, see page 44.

College Courses. One of the colleges' important activities is their sponsorship of courses and workshops open to all students. By expanding course offerings outside the traditional departments, college courses promote the academic involvement of the colleges while introducing students to interdisciplinary topics of particular interest.

Students propose college courses during the semester before they are offered. Once approved by the masters and faculty associates of the college and by the vice president for Student Affairs and the provost, these college courses are offered for academic credit on the same basis as departmental courses. The registrar provides a list of college courses each semester during preliminary registration.

STUDENT GOVERNMENT

All undergraduates are members of the Rice Student Association, which is governed through the Student Senate. The senate includes the president, two vice presidents, the secretary, the treasurer, the nine college presidents, and nine college senators.

Alleged violations of university or college rules are handled in accordance with the Code of Student Conduct. In most cases, original jurisdiction belongs to student courts. Students may appeal verdicts to the college masters or the assistant dean for student judicial programs, as appropriate with a final appeal to the vice president for student affairs. The student-staffed Honor Council conducts hearings and trials for alleged offenses against the honor system (see page 8). Rice retains ultimate authority in all matters of discipline and over all actions that affect its educational function or the safety and well-being of members of the university community.

Award Presentations—The Rice Student Association presents two coveted awards annually, one to a student and one to a faculty or staff member. The Rice Service Award, a memorial to Hugh Scott Cameron, first dean of students at Rice, is awarded to currently enrolled or former members of the association who have rendered distinguished service to the student body. The Mentor Recognition Award recognizes extraordinary service to the student body by a current member of the faculty or staff. A committee of faculty and students appointed by the association makes the selections.

OFFICE OF STUDENT ACTIVITIES

The Office of Student Activities, located in the Rice Memorial Center cloisters, oversees the activities of various campuswide student organizations. It also handles student requests for facilities and party permits, and it coordinates leadership development programs, including the annual leadership retreat and symposium.

Principal student organizations include the following:

- Rice Student Association, the student governing body
- Rice Program Council, which sponsors various events of current interest to the student body as well as social functions
- KTRU, the student-run radio station, operating 24 hours, seven days a week, on 91.7 FM
- Student publications (e.g., *Rice Thresher*, the student newspaper; *Campanile*, the yearbook; *The Rice Undergraduate: The Annual Academic Review*, a collection of peer-reviewed student papers; and *University Blue*, a literary and visual arts publication)

A large number of student organizations address special student interests, such as the Black Student Association, the Hispanic Association for Cultural Education at Rice, the Chinese Student Association, Rice Young Democrats, and Rice Republicans.

There also are numerous clubs for such sports as sailing, rugby, lacrosse, volleyball, and soccer. Other special-interest groups include a premed society, forensic society, juggling club, and vegetarian club.

Many organizations are associated with special academic and professional disciplines, such as foreign language clubs, honor societies, and student affiliates of the American Chemical Society, the American Society of Civil Engineers, and the American Society of Mechanical Engineers.

The Rice Players, an extracurricular theater group of Rice students, faculty, and staff, present at least four productions each year and welcome participation by anyone interested in any aspect of theater production or management.

Rice students also maintain affiliations with a number of religious organizations. These include, but are not limited to, the Baptist Student Union, Canterbury Association, Catholic Student Association, Christian Science Organization, Hillel Society, Lutheran Student Association, Intervarsity Christian Fellowship, and the Wesley Foundation. Many of these clubs are assisted by local clergy who form the Joint Campus Ministry.

The Office of Student Organizations on the second floor of the Ley Student Center houses mailboxes for all student organizations. There is a student organization work space in the basement of the Rice Memorial Center that has office space, storage, and computers for student organization use.

COMMUNITY INVOLVEMENT CENTER/RICE STUDENT VOLUNTEER PROGRAM

Housed in the cloisters of the Rice Memorial Center, the Community Involvement Center works to develop a culture of service within the university by functioning as an advocate for community service, social responsibility, and an increased awareness of social and community issues. The center acts as a clearinghouse for resources and referrals involving local, national, and international community agencies and service opportunities. By making educational programs and information available, the center fosters a lifelong commitment to service among students, faculty, and staff. It also organizes alternative semester break service trips, volunteer fairs, beach cleanups, and other activities. The 10 student service organizations supported by the Community Involvement Center include Rice Habitat for Humanity, youth mentoring and tutoring programs, tutoring in English as a second language, Best Buddies, and the Rice Student Volunteer Program.

By heightening student awareness of community needs and generally raising social consciousness, the Rice Student Volunteer Program (RSVP) has organized volunteer projects for Rice students, faculty, and staff since 1985. The largest event of each semester is Outreach Day, a Saturday when approximately 500 students volunteer with more than 30 nonprofit agencies throughout the Houston area, learning how to take thoughtful action to build a stronger, more just community. With an office in the cloisters of the Rice Memorial Center, RSVP invites each student's involvement as an officer, a college representative, a committee member, a project organizer, or an interested participant in any RSVP event.

INTERCOLLEGIATE SPEECH AND DEBATE

Consistently ranked in the top 10 nationally, the George R. Brown Forensic Society sponsors competition in the categories of Individual Events, Lincoln-Douglas, and Parliamentary Debate. The society provides students with the chance to hone their public speaking skills and to qualify for competition both at the American Forensic Association National Individual Events Tournament and at the National Parliamentary Debate Championships. Recognizing the importance

of developing strong communication skills, the society has an open admissions policy, inviting students with little or no previous experience as well as those with extensive high school backgrounds to become members of one of the most successful teams at Rice. For more information on speech and debate, please go to <http://www.ruf.rice.edu/~forensic/eventinfo/>.



INFORMATION
FOR GRADUATE
STUDENTS

INTRODUCTION

Since Rice opened in 1912, the university has recognized the importance of graduate study and research as a principal means of advancing knowledge. The first Doctor of Philosophy degree was awarded in 1918 in mathematics. Since that time, the graduate area has expanded to encompass the schools of architecture, engineering, humanities, management, music, natural sciences, and social sciences, as well as interdepartmental areas. The graduate program has steadily increased over time; Rice now enrolls approximately 1,900 graduate students and offers advanced degrees in 29 fields of study.

Graduate programs lead to either research or professional degrees. Research programs generally require the completion of a publishable thesis that represents an original and significant contribution to the particular field of study. Research degrees include the Doctor of Philosophy (PhD), Doctor of Architecture (DArch), Master of Arts (MA), and Master of Science (MS).

Professional programs provide advanced course work in several disciplines but do not generally include independent research. These programs lead to degrees in most of the major schools including many engineering disciplines. (See the Graduate Degree Chart and the Interdepartmental and Cooperative Programs Chart on pages 61-62 for a complete listing of degrees offered.)

All degrees conferred by the university are awarded solely in recognition of educational attainments and not as warranty of future employment or admission to other programs of higher education.

For additional information on graduate programs and requirements, please go to <http://rgs.rice.edu>.

ADMISSION TO GRADUATE STUDY

Graduate study is open to a limited number of extremely well-qualified students with a substantial background in their proposed field of study (this usually, though not always, means an undergraduate major in the field). Each department determines whether applicants have enough preparation to enter a given program, emphasizing the quality of their preparation rather than the particular academic program they completed or the credits they earned.

Admittance to a Rice University graduate-degree program, with the exception of those in the School of Music, requires a baccalaureate degree or its equivalent as determined by the Office of Graduate Studies. For the Shepard School of Music, the equivalent to the baccalaureate degree will be determined by their graduate committee.

Applicants for admission to graduate study should either contact of the appropriate department for application forms and relevant information about the program or visit the department's website for on-line application information. The Graduate Studies website, <http://rgs.rice.edu>, also has links to the graduate departments' websites. The Department Information Chart (pages 68-71) lists department chairs with department phone/fax numbers and e-mail addresses. Applicants should send all application materials, including transcripts and test scores, to the admitting department.

Application Process—An application for graduate study should include the completed application form, the application fee, transcript(s), recommendations, and writing samples, if required. Some departments require scores on the aptitude portion of the Graduate Record Examination (GRE) or the Graduate Management

Admission Test (GMAT) and an appropriate advanced test; these should be sent directly to the admitting department. See individual departmental listings for specific requirement information.

To make sure scores are available when admission decisions are normally made, applicants should take the GRE by the December before the fall for which they are applying. The application deadline for the fall semester is February 1. Some departments, however, may specify an earlier deadline, and departments may occasionally consider late applications.

Admission depends on students' previous academic records, available test scores, and letters of reference from scholars under whom they have studied. Writing samples, portfolios, or statements of purpose may also be required. In general, applicants should have at least a 3.00 (B) grade point average in undergraduate work. Applicants whose native language is not English must take the TOEFL test and should score at least 600 on the paper-based TOEFL or at least 250 on the computer-based TOEFL. For those students who choose to take the IELTS in lieu of TOEFL, the minimum score is 7. The TOEFL and IELTS may be waived for an international student who has received a degree from a university in which English is the official language of communication.

GRADUATE DEGREES

RESEARCH DEGREES

Research degrees are offered in six of the seven schools at Rice (the School of Management offers professional degrees only), with some degrees combining studies in more than one school. For general information on advanced degree work at Rice, see Requirements for Graduate Study (pages 62–63). Specific requirements for advanced research degrees in each field of study appear in the appropriate departmental pages (pages 80–257). Students seeking additional material should contact the appropriate department (see Department Information Chart on pages 68–71).

PhD Programs—The PhD degree is awarded for original studies in the departments listed in the Graduate Degree and Interdepartmental and Cooperative Programs Charts (pages 61–62); in architecture, the equivalent degree is the DArch. Candidates receive a PhD degree after successfully completing at least 90 semester hours of advanced study and concluding an original investigation that is formalized in an approved thesis. As final evidence of preparation for this degree, the candidate must pass a public oral examination. (See also Candidacy, Oral Examinations, and the Thesis Regulations on pages 64–66.) The residency requirement for the doctorate is four semesters of full-time study at the university.

Master's Programs—The MA degree is available in the departments listed in the Graduate Degree and Interdepartmental and Cooperative Programs Charts (pages 61–62), including certain scientific fields of study. The MS degree is offered in the engineering and science fields also listed in the chart. Candidates may undertake the MArch, MArch in Urban Design, and MMus degrees as research degrees by adopting the thesis option. Candidates receive a master's degree after completing at least 30 semester hours of study (including thesis hours), 24 hours of which must be taken at Rice. Master's programs require original work reported in a thesis and a public oral examination. Most students take three or four semesters to complete a master's degree (some programs may require more time). Students receiving a master's degree must be enrolled in a graduate program at Rice University for at least one semester.

Students may also pursue a nonthesis degree in certain departments. This degree would be based on alternative departmental requirements and would include, but not be limited to, the following:

- 30 semester hours of study
- 24 semester hours must be at Rice University
- Minimum residency is one semester of full-time study
- At least 15 hours of course work must be at or above the 500 level
- All courses must be in the relevant field

In certain departments, students may receive a master's degree (called an *Automatic Master's*) when they achieve candidacy for the doctoral degree. Students seeking a master's degree in this manner must submit a petition for the degree, signed by their department chair, to the Office of Graduate Studies by February 1 of the year in which the degree is to be awarded. (See also Candidacy, Oral Examinations, and the Thesis on pages 64–66.)

PROFESSIONAL DEGREES

Rice University offers advanced degree programs to prepare students for positions in a number of professional fields. The professional degrees listed in the Introduction (page 56) appear in the Graduate Degree and Interdepartmental and Cooperative Programs Charts (pages 58–62). In some departments, the professional degree also prepares the student for a doctoral-level program. All professional degrees are master's degrees with one exception: candidates earn the DMA after concluding a program of advanced music study.

Requirements for professional degrees include the successful completion of 30 semester hours or more of upper-level courses (at the 300 level or higher) with at least 24 hours taken at Rice. Specific information and requirements for individual degrees appear in the Graduate Degree Chart (pages 58–61). Program information and application materials are also available from the departments (see Department Information Chart on pages 68–71). For general information on advanced degree work at Rice, see Requirements for Graduate Study (pages 62–63).

Admission into a professional program is granted separately from admission into a research or thesis program. Students who wish to change from a thesis program to a professional degree program must petition their department in writing. Upon recommendation of the department and approval by the dean's office, the request is sent to the Office of Graduate Studies for consideration and final approval. If approved, students who received tuition waivers while enrolled in the thesis program will be expected to repay the tuition before their professional degrees are awarded. Professional degree programs terminate when the degree is awarded. Students who wish to continue graduate study after completing a professional program must reapply for admission into a research program.

GRADUATE DEGREE CHART

School Department	Graduate Degree Offered	Additional Options or Areas of Concentration (within majors)
SCHOOL OF ARCHITECTURE		
	MArch, MArch in Urban Design, DArch	
GEORGE R. BROWN SCHOOL OF ENGINEERING		
Bioengineering	MS, PhD	Biochemical engineering, biological systems modeling, biomaterials, biomedical lasers, cellular and molecular

<i>(Bioengineering continued)</i>		engineering, controlled release technologies, metabolic engineering, phytoremediation, spectroscopy, systems engineering and instrumentation, thrombosis, tissue engineering, and transport processes.
Chemical Engineering	MChE, MS, PhD	Thermodynamics and phase equilibria, chemical kinetics and catalysis, optimization and process control, rheology and fluid mechanics, polymer science, biomedical engineering, enhanced oil recovery and cleanup of groundwater aquifers, and biochemical reactor engineering.
Civil and Environmental Engineering	MCE, MEE, MES MS, PhD	Civil engineering: structural dynamics and control, structures and mechanics, reinforced and prestressed concrete, geotechnical engineering, computer-aided engineering, probability and random vibrations, reliability of systems, and solid mechanics. Environmental science: environmental biology, chemistry, toxicology, geology, and planning; surface and groundwater hydrology; water and wastewater treatment; and urban and regional air quality. Environmental engineering: hydrology and water resources engineering; water and wastewater treatment, design, and operation; and numerical modeling
Computational and Applied Mathematics	MCAM, MCSE, MA, PhD	Numerical analysis, operations research, and differential equations; additional program in computational science and engineering (see Interdepartmental and Cooperative Programs)
Computer Science	MCS, MS, PhD	Algorithms and complexity, artificial intelligence and robotics, bioinformatics, compilers, distributed and parallel computation, graphics and visualization, operating systems, and programming languages
Electrical and Computer Engineering	MEE, MS, PhD	Bioengineering, communication and signal processing, computer architecture and networking, electro-optics, and device physics
Mechanical Engineering and Materials Science	MME, MMS, MS, PhD	Mechanical engineering: mechanics, computational mechanics, stochastic mechanics, fluid dynamics, heat transfer, dynamics and control, robotics, biomedical systems, and aerospace sciences. Materials science: nanotechnology, metals physics, statistical mechanics, metallic solid thermodynamics, materials chemistry, aspects of composites, coatings and thin films, and interface science
Statistics	MStat, MA, PhD	Applied probability, Bayesian methods, bioinformatics, biomathematics, biostatistics, data analysis, data mining, density estimation, epidemiology, environmental statistics, financial statistics, image processing, model building, nonparametric function estimation, quality control, risk management, spatial temporal statistics, statistical computing, statistical genetics, statistical visualization, stochastic processes, and time series analysis

SCHOOL OF HUMANITIES

English	MA, PhD	British and American literature and literary theory
French Studies	MA, PhD	French literature, language, and culture
Hispanic Studies	MA	Spanish and Latin American literature and Spanish Linguistics
History	MA, PhD	U.S., European, and other history
Linguistics	MA, PhD	Anthropological, applied, cognitive, field, functional or discourse, and English, German, or Romance linguistics; second language acquisition; language typology and universals, sociolinguistic, phonetics, phonology, and speech technology

Philosophy	MA, PhD	Specialization in medical ethics
Religious Studies	MA, PhD	Religion and contemporary cultures; scriptural interpretation; ethics and philosophy of religion; mysticism, psychology, and religious practices

JESSE H. JONES GRADUATE SCHOOL OF MANAGEMENT

	MBA, MBA MBA/Master of Engineering MBA/MD (with Baylor College of Medicine) MBA for Executives	MBA is a general management degree; however, students may have informal concentrations in the following areas: accounting, entrepreneurship, finance, general management, international business, information technology, marketing, operations management, organizational behavior and human resource management, healthcare management, and strategic management and planning; joint nonthesis degree option with all engineering disciplines
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SHEPHERD SCHOOL OF MUSIC

	BMus/MMus, MMus, DMA	Composition, choral and instrumental conducting, historical musicology, performance, and music theory Composition and selected areas of performance
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WIESS SCHOOL OF NATURAL SCIENCES

Biochemistry and Cell Biology	MA, PhD	Biochemistry, biophysics, developmental biology, cell biology, genetics, molecular biology, neurobiology, structure and function of nucleic acids and proteins, regulatory processes, biochemistry of lipids, enzymology, NMR and crystallography, cellular regulation, oxygen and electron transport, molecular genetics of plants, animals, fungi, bacteria, and bacteriophage
Chemistry	MA, PhD	Organic chemistry, inorganic chemistry, physical chemistry, nanotechnology, biological chemistry, theoretical and computational chemistry, materials chemistry, bio-organic chemistry, and bio-inorganic chemistry
Ecology and Evolutionary Biology	MA, PhD	Plant community and population ecology, insect diversity and community structure, behavioral ecology, sociobiology, and molecular evolution
Earth Science	MA, PhD	Marine geology and geophysics; sedimentology, stratigraphy, paleoceanography, paleoclimatology, evolution of continental margins and carbonate platforms; tectonics, neotectonics, tectonophysics, geodynamics, mantle processes, planetology, and space geodesy; remote sensing, potential fields, reflection and lithospheric seismology, global seismology, wave propagation and inverse theory; kinetics of fluid-solid interactions, low T aqueous geochemistry, petrology, and high T geochemistry
Mathematics	MA, PhD	Differential and algebraic geometry, ergodic theory, partial differential equations, probability and combinatorics, real analysis, complex variables, and geometric and algebraic topology
Physics and Astronomy	MST, MS, PhD	Atomic and molecular physics, biophysics, particle physics, condensed matter physics, surface physics, space physics, astronomy, astrophysics, and theoretical physics

SCHOOL OF SOCIAL SCIENCES

Anthropology	MA, PhD	Archaeology and social/cultural anthropology
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Economics	MA, PhD	Econometrics, economic theory, industrial organization and regulation, international trade and finance, labor, macroeconomics/monetary theory, and public finance and development
Political Science	MA, PhD	American government, comparative government, and international relations
Psychology	MA, PhD	Cognitive-experimental psychology and industrial-organizational/social psychology, with tracks in engineering psychology, human-computer interaction, and neuropsychology

INTERDEPARTMENTAL AND COOPERATIVE PROGRAMS

Opportunities for graduate study are available in a number of interdisciplinary areas. The advanced degree programs listed in the Interdepartmental and Cooperative Programs Chart (below) are administered by the participating Rice departments. They represent fields of study in rapidly developing areas of science and engineering or those areas subject to multiple investigations and interests. Rice has also established ties with other Houston universities and the Texas Medical Center to enable graduate students to receive training in computational biology research, to earn separate degrees simultaneously, or to focus their doctoral study on the specialized field of medical ethics.

INTERDEPARTMENTAL AND COOPERATIVE PROGRAMS CHART

Program	Degrees Offered	Departments/Areas of Concentration
INTERDEPARTMENTAL PROGRAMS		
Applied Physics	Master's, PhD	Departments in physics and astronomy, chemistry, electrical and computer engineering, mechanical engineering and materials sciences, bioengineering, computational and applied mathematics, and civil and environmental engineering; sciences that underlie important new and emerging technologies. Contact: Rice Quantum Institute, 713-348-6356 or quantum@rice.edu.
Computational Science and Engineering	Master's, PhD	Modern computational techniques and use of powerful, new computers in research, development, and design involving the following departments: computational and applied mathematics, biochemistry and cell biology, geology and geophysics, computer science, chemical engineering, electrical and computer engineering, or caam@caam.rice.edu.
Education Certification	MAT	Secondary teaching certification in conjunction with BA in major field
Environmental Analysis and Decision Making	MS	Departments in computational and applied mathematics, statistics, civil and environmental engineering, chemistry, earth science, ecology and evolutionary biology, mechanical engineering and materials science, chemical engineering, sociology, electrical and computer engineering, management, and natural sciences. Contact Professional Master's Program: 713-348-3188 or profms@rice.edu.
Materials Science and Engineering	Master's, PhD	Departments in chemistry, electrical and computer engineering, mechanical engineering and materials sciences, chemical engineering, and physics. Contact: 713-348-4906 or mems@rice.edu.
Nanoscale Physics	MS	Departments in physics and astronomy, electrical and computer engineering, chemistry, management, and natural sciences. Contact Professional Master's Program: 713-348-3188 or profms@rice.edu.

Study of Women and Gender	Graduate Certificate	Departments in anthropology, English, French, history, linguistics, philosophy, and religious studies
Subsurface Geoscience	MS	Departments in earth science, chemistry, statistics, management, sociology, and natural sciences. Contact Professional Master's Program: 713-348-3188 or profms@rice.edu.

COOPERATIVE PROGRAMS

Joint Programs in Biomedical Ethics	MA, PhD	Religious studies degree with the University of Texas Health Science Center at Houston. Contact: 713-348-5201 or reli@rice.edu Philosophy degree with the Baylor College of Medicine and the Institute of Religion. Contact: 713-348-4994 or phil@rice.edu.
Joint Program in Computational Biology	Training opportunities for PhD students	Research in a lab setting, seminars and work-shops, and access to advanced resources of W.M. Keck Center for Computational Biology (fellowships available); with Baylor College of Medicine and the University of Houston. Contact: 713-348-4752 or bioc@rice.edu.
Joint Programs with Medical Colleges	MD/PhD, MD/MA, MD/MS	Combined MD and advanced research degree for research careers in medicine; with Baylor College of Medicine. Contact: 713-348-5869 or bioeng@rice.edu.

ACADEMIC REGULATIONS

REQUIREMENTS FOR GRADUATE STUDY

Graduate students must meet the following minimums, deadlines, and course or grade requirements to graduate in good standing from the university. Some departments may have stricter policies and/or requirements.

Residency—Master's students must complete at least one semester enrolled in a graduate program at Rice University. PhD students must be enrolled at least four semesters in full-time study at Rice University.

Full-time study—Semester course load for full-time students is 9 hours, or more as required by specific departments. Graduate programs at Rice generally require full-time study.

Part-time study—Admission of part-time students requires departmental permission, and students must register for at least 3 hours in a semester. All time-to-degree requirements apply to part-time students.

Time to degree—PhD students are required to complete their program, including thesis defense, within ten years of initial enrollment in the degree program. Masters students are required to complete their program, including thesis defense, within five years of initial enrollment. In both cases, students have a limit of six additional months from the date of defense to submit their theses to the Office of Graduate Studies. These time boundaries include any period in which the student was not enrolled or enrolled part-time, for whatever reason.

Time to candidacy—PhD students must be approved for candidacy before the beginning of the ninth semester of their residency at Rice. Masters

students must be approved for candidacy before the beginning of the fifth semester of their residency at Rice.

Time to defense—PhD students must defend their theses before the end of the 16th semester of their residency at Rice. Masters students must defend their theses before the end of the eighth semester of their residency at Rice.

Time to thesis submission—After candidates successfully pass the oral examination in defense of the thesis, they must submit two signed copies of the thesis to the Office of Graduate Studies no later than six months from the date of the examination.

Credit for previous degrees—For students who enter a doctoral program with a master's degree, completed at Rice or elsewhere, departments should determine the amount of previous work, if any, that will be counted from the master's degree at issue toward the doctoral degree. Any such credit of one semester or more toward doctoral requirements will result in an equal reduction of the time allowed for (1) the achievement of candidacy, (2) the defense of the PhD thesis, and (3) the total time to the doctoral degree. The maximum credit allowed for students with master's degrees from Rice will be six semesters, and the maximum credit allowed for students with master's degrees from outside Rice will be two semesters.

Minimum hours—Students must register for at least 3 hours in a semester.

Course registration—Students may register for courses of study and drop or add courses only with the approval of their adviser or the department chair.

Deadlines—Students must observe all deadlines listed in the Academic Calendar (pages viii–xiv).

Grades—To graduate, students must achieve at least a B- (2.67) grade point average in courses counted toward the graduate degree. Some programs and departments have more stringent standards. To compute grade point averages, the credits attempted in semester hours for each course and the points for the grade earned (from A+ = 4.33 to F = 0.00) are multiplied, then the products (one for each course) are added together and the sum is divided by the total credits attempted. See also Probationary Status (page 67).

Pass/Fail—All students, except Class III students, may take course(s) Pass/Fail outside their department. They must file a course as Pass/Fail no later than the end of the 10th week of classes; however, they may later convert a Pass/Fail to a graded course by filing the appropriate paperwork with the registrar. Students should be aware that while a grade of P does not affect their Grade Point Average, a grade of F does.

Satisfactory/Unsatisfactory—Some departments may assign a grade of S or U. Students should be aware that while a grade of S or U does not affect their Grade Point Average, no credit will be awarded if a grade of U is received. Courses with a grade of S will count towards total credits earned.

Departmental duties—In most research degree programs, students must undertake a limited amount of teaching or perform other services as part of their training. Assigned duties should not entail more than 10 hours per week, averaged over the semester, or extend over more than eight semesters.

Employment—Students receiving a stipend may accept employment only with the approval of their home academic department. Students working for more than 20 hours per week are not normally eligible for full-time status.

Continuous enrollment—Students must maintain continuous program involvement and enrollment unless granted an official leave of absence. See Leaves or Withdrawals (page 66) for more information.

CANDIDACY, ORAL EXAMINATIONS, AND THE THESIS

Approval of Candidacy—Candidacy marks a midpoint in the course of graduate education. Achieving candidacy for the PhD implies that a graduate student has: (a) completed required course work, (b) passed required exams to demonstrate his/her comprehensive grasp of the subject area, (c) demonstrated the ability for clear oral and written communication, and (d) shown the ability to carry on scholarly work in his/her subject area. Requirements for achieving candidacy for the thesis Masters degree are determined at the departmental level. Students enrolled in research degree programs submit their petitions for candidacy for a master's or doctoral degree through the department chair to the vice provost for research and graduate studies. In the petition sent to the vice provost, the department chair identifies the student's thesis director, recommends a thesis committee, certifies that the applicant has fulfilled the departmental requirements, and provides a course transcript as evidence that work completed within the department is of high quality.

Students must file their applications for approval of PhD and MA/MS candidacy in the Office of Graduate Studies on or before November 1 for mid-year conferral and on or before February 1 for May commencement. Students may take the final oral examination in defense of their thesis only after the vice provost for research and graduate studies approves their candidacy. PhD students must be approved for candidacy before the beginning of the ninth semester of their residency at Rice. Master's students must be approved for candidacy before the beginning of the fifth semester of their residency at Rice.

Thesis Committee—The thesis committee administers the oral examination for the student's thesis defense and has final approval/disapproval authority and responsibility for the written thesis.

A thesis committee is composed of at least three members. Two, including the committee chair, must be members of the student's department faculty; in doctoral thesis committees, one member must be from another department within the university. At least three members of the committee must meet one of the following requirements:

- Tenured or tenure-track members of the Rice faculty
- Research faculty holding the rank of faculty fellow, senior faculty fellow, or distinguished faculty fellow
- Faculty who have been certified as thesis committee members by the vice provost for research and graduate studies

The committee chair need not be the thesis director. The chair, however, must be either a tenured or tenure-track member of the major department or a research faculty member of the major department. Additional members of the committee, who may or may not meet the above criteria, may be selected with the approval of the department chair. These would be in addition to the three required members.

Candidates are responsible for keeping the members of their committee informed about the nature and progress of their research. They also must establish a schedule for thesis completion and review. The members of the committee, in turn, should review the thesis in a timely manner, approving a preliminary form of the thesis before scheduling the oral examination.

Oral Examination in Defense of Thesis—The public oral defense of a thesis is intended to be an examination of a completed body of work and should be scheduled only when the dissertation is essentially completed. The defense should be scheduled by the student after consultation with the thesis adviser, who agrees

that the thesis is completed and ready to be defended. All members of the thesis committee must be present for the oral defense. A candidate must be enrolled in the semester in which his or her oral examination is held. For the purpose of the oral defense only, enrollment in a semester is considered valid through the Friday of the first week of class of the following semester.

At least one copy of the thesis must be available in the departmental office not less than two calendar weeks prior to the date of the oral defense. Oral examinations for the doctoral degree must be announced in *Rice News* at least one week in advance. Oral examination announcements can be submitted to *Rice News* by entering the information into the Graduate Students Thesis Defense Announcement form. (Specific instructions should be requested by sending e-mail to graduate@rice.edu when the student has set the date for the defense. The words "Rice News defense announcement" need to appear in the subject line of the e-mail.) An automatically generated e-mail will be sent to *Rice News* with the information for the *Rice News* calendar once the defense form has been submitted.

Students should note that material printed in *Rice News* must be submitted at least two weeks before publication; the *Rice News* calendar editor can provide specific submission dates. PhD candidates therefore should begin scheduling their oral defenses at least three weeks in advance.

Oral examinations for the master's degree require only that public notice of the oral defense be posted on the department bulletin board one week in advance and a copy sent to the Office of Graduate Studies.

The length of the oral examination and the subject matter on which the candidate is questioned are left to the judgment of the committee. After candidates successfully pass the oral examination in defense of the thesis, they must submit two signed copies of the thesis to the Office of Graduate Studies no later than six months from the date of the examination. If the thesis is not ready for final signature by the end of the six-month period, the "pass" will be revoked and an additional oral defense will need to be scheduled. Extensions of this six-month period for completion without reexamination will be granted only in rare circumstances. Applications for an extension must be made by the candidate with the unanimous support of the thesis committee and approved by the Office of Graduate Studies. Students passing the oral examination on or before the end of the first week of classes of any semester do not have to register for that or any subsequent semester even though they may be continuing to make minor revisions to the final copy of their thesis.

Should a candidate fail, the committee chair may schedule a second examination. Students who fail a second time must withdraw from the university.

Students must send a copy of their approval of candidacy form, signed by the thesis committee signifying successful defense of the thesis, to the Office of Graduate Studies within one week after the oral examination. The original approval of candidacy form must be turned in when the thesis is submitted.

PhD students must defend their theses before the end of the 16th semester of their residency at Rice. Master's students must defend their theses before the end of the eighth semester of their residency at Rice.

Thesis Regulations and Procedures—The thesis is the principal record of a student's work for an advanced degree. It is permanently preserved in the library. Instructions for thesis submission and guidelines for thesis formatting are provided by the Office of Graduate Studies at the time of approval of candidacy. Additional copies of these instructions are available from the graduate studies office and can also be accessed on the Rice website at: <http://rgs.rice.edu/grad/policies/thesis>.

Students must have the original signatures of their thesis committee on two title pages of their dissertation. Students submitting a dissertation for the PhD, DArch, or DMA must fill out a Survey of Earned Doctorates form. All students submitting theses, whether for master's or doctoral degrees, must complete a University Microfilm contract. Students must pay their fees for microfilming and binding their theses to the cashier before submitting the two copies to the Office of Graduate Studies for approval. The thesis may be submitted to the Office of Graduate Studies at any time; however students must meet the deadline for the thesis submission listed in the Academic Calendar (pages viii-xiv).

LEAVES OR WITHDRAWALS

Leave of Absence—A leave of absence is granted only by the Office of Graduate Studies upon the recommendation of the department chair and only to graduate students in good standing with the university. Students must obtain approval for a leave before the academic semester in question. These requests, approved by the department, must be received in the Office of Research and Graduate Studies prior to the first day of classes.

Leaves are not granted after students register for courses or after the registration period passes. Normally, students may take a leave of absence for no more than two consecutive semesters. Students must pay a reinstatement fee of \$85 upon their return from an official leave.

Short Term Medical and Parental Leave—If a graduate student cannot fulfill the duties of his or her appointment due to a medical emergency or the adoption or birth of a child, enrollment and stipend support may be continued for up to six weeks or until the appointment expires (which ever occurs first). Complete guidelines for obtaining a short term or parental leave are available at: <http://rgs.rice.edu/Grad/Policies/med-mat-leave.cfm>

Withdrawal and Readmission—Students who wish to withdraw from Rice during the semester, for any reason, are to notify the chair of their academic department in writing (see Refund of Tuition and Fees, pages 44-45). Failure to register for any period without a leave of absence granted by the Office of Graduate Studies constitutes a de facto withdrawal.

The university may insist on a student's involuntary withdrawal if, in the judgement of the vice provost for research and graduate studies, the student;

- Poses a threat to the lives or safety of him/herself or other members of the Rice community
- Has a medical or psychological problem that cannot be properly treated in the university setting
- Has a medical condition or demonstrates behavior that seriously interferes with the education of other members of the Rice community

Students who later wish to resume study, whether after voluntary or involuntary withdrawal, must reapply to the university. Readmission requires the recommendation of the department chair and the approval of the vice provost for research and graduate studies. Accepted students must pay a readmission fee of \$290.

Students who withdraw for medical reasons must meet certain conditions when applying for readmission. They must submit a written petition for readmission to the Office of Graduate Studies at least one month before the start of the semester in which they wish to resume their work at Rice. They must also provide evidence from a health professional that they have resolved the problems leading to their withdrawal. Some cases may require an interview with the director

of the Rice Counseling Center, with the director of Student Health Services or their designees.

Nonenrollment—Students may not do degree work at Rice or work involving Rice faculty or facilities during any period of nonenrollment, except during the period following successful oral defense prior to submission of the final thesis.

DROP/ADD

During the first two weeks of classes, all students may change their registration without a penalty fee by adding or dropping courses with the appropriate adviser's approval. Students must obtain the instructor's permission and the adviser's approval to add a course after the second week of classes. Students may not add courses after the fourth week of classes without the permission of the Office of Graduate Studies.

Students may not drop courses after the end of the 10th week of classes, except by approval of the Office of Graduate Studies (a \$50 fee is assessed for courses dropped after the 10th week by non-first-semester students). The student is to prepare a written petition that must be approved by the student's adviser and department chair and then forwarded to the vice provost for consideration.

Students who add or drop courses after the second week but before the deadlines noted above are charged for each drop/add form submitted according to the fee schedule (see page 23).

ACADEMIC DISCIPLINE

Probationary Status—Students whose cumulative grade point average or the average for the most recently completed semester falls below 2.33 are placed on probationary status; some departments may have more stringent standards. Although the department in most cases sends the student a letter of warning, probationary status applies whether or not a letter has been issued. A second semester of probationary status leads to automatic dismissal by the Office of Graduate Studies unless the student's department presents a plea for exception that is approved by the vice provost for research and graduate studies. Departments are free to dismiss a student in the first semester of probationary status if they issue a warning before taking action.

Dismissal—Reasons for student dismissal include unsatisfactory progress as determined by the student's department or behavior judged by Rice to be disruptive or otherwise contrary to the best interests of either the university or the student.

APPEAL

Students may petition the Office of Graduate Studies regarding the application of any academic regulation. Petitions should go through department chairs and divisional deans, who will be asked to comment on their merits. In some cases, the vice provost will seek the advice of the Graduate Council. For appeals regarding nonacademic matters, see the following section on problem resolution.

OTHER DISCIPLINARY SANCTIONS

Additionally, the assistant dean of Student Judicial Programs may place students on probation or suspension for violating the Honor Code or Code of Student Conduct or for other disciplinary reasons. Students on disciplinary suspension (including for an Honor System violation) may not receive their degree even if they have met all academic requirements for graduation. They must leave the university within 48 hours of being informed of the dean's decision, though in cases of unusual

hardship, the assistant dean of Student Judicial Programs may extend the deadline to one week. Any tuition refund will be prorated from the official date of suspension, which is determined by the registrar. While on disciplinary suspension, students may not run for, or hold, any elective or appointed office in any official Rice organization. Participation in student activities on and off campus and use of Rice facilities are limited to enrolled students. Students seeking admission after leaving the university because of a sanction imposed by the assistant dean should submit a petition in writing for review by the assistant dean.

PROCEDURES FOR RESOLUTION OF PROBLEMS

Problems or conflicts may arise during a student's graduate education. Students should take responsibility for informing the appropriate faculty of any such problem. All parties involved should work together amicably with the goal of resolving the problem informally if at all possible. When attempts to resolve a problem informally do not meet with success, the following grievance procedure should be adopted.

1. The student should submit the grievance in writing to the departmental chair, who will then attempt to resolve the problem.
2. If the student remains unsatisfied, the problem should be presented to a departmental committee for resolution. This committee should be a standing committee and not the student's own review or dissertation committee. Both the student and the chair should submit a written record of their views to this committee.
3. If the student remains unsatisfied, the problem should be referred to a standing subcommittee designed at Graduate Council and composed of three faculty members (representing diverse disciplines within the university), one graduate student and the associate dean for graduate studies. A written report of proceedings at stage two should be presented to the chair of graduate council, for forwarding to the subcommittee, together with all other written materials generated during the investigation. The decision of this subcommittee will be considered final.

DEPARTMENT INFORMATION CHART

Department Chair	Phone, Fax, E-mail, URL	Faculty Research Interests
SCHOOL OF ARCHITECTURE		
Lars Lerup (Dean)	713-348-4044 fax: 713-348-5277 arch@rice.edu	Architecture design, urbanism, theory, and practice
John J. Casbarian (Associate Dean)	713-348-5152 www.arch.rice.edu/flash/	
GEORGE R. BROWN SCHOOL OF ENGINEERING		
Bioengineering: David Hellums	713-348-5869 fax: 713-348-5877 bioeng@rice.edu dacnet.rice.edu/~bioe/	Biochemical engineering, biological systems modeling, biomaterials, biomedical lasers, cellular and molecular engineering, controlled release technologies, metabolic engineering, spectroscopy, systems engineering and instrumentation, thrombosis, tissue engineering, and transport processes
Chemical Engineering: Kyriacos Zygourakis	713-348-4902 fax: 713-348-5478 ceng@rice.edu www.ruf.rice.edu/~che/	Transport and interfacial phenomena, thermodynamics, catalysis and reactor design,

(<i>Chemical Engineering continued</i>)		optimization and process control, rheology and fluid mechanics, polymer science, bio-medical engineering, enhanced oil recovery and cleanup of ground-water aquifers, bio-chemical reactor engineering
Civil and Environmental Engineering: Herb Ward	713-348-4949 fax: 713-348-5268 civi@rice.edu www.ruf.rice.edu/~ceedept/	Structural and foundation dynamics (e.g., earth-quake and offshore engineering), structural control, reinforced and prestressed concrete structures, application of probability theory to structural dynamics, experimental studies of structures, geotechnical engineering, and computer-aided engineering Surface and groundwater hydrology, biochemical process engineering, aquatic chemistry, environmental microbiology, physical-chemical processes, membrane processes, colloid chemistry, GIS and contaminant transport modeling, urban and regional air quality, earth systems, and environmental law
Computational and Applied Mathematics: Bill Symes	713-348-4805 fax: 713-348-5318 caam@rice.edu www.caam.rice.edu/	Operations research, mathematical programming, discrete and continuous optimization, numerical linear algebra, inverse problems, computational seismology, optimal design, partial differential equations, and numerical analysis
Computer Science: Keith Cooper	713-348-4834 fax: 713-348-5930 comp@rice.edu www.cs.rice.edu/	Algorithms and complexity, artificial intelligence and robotics, compilers, distributed and parallel computation, graphics and visualization operating systems and programming languages
Electrical and Computer Engineering: Behnaam Aazhang	713-348-4020 fax: 713-348-5686 elec@rice.edu www.ece.rice.edu	Bioengineering, communications and signal processing, computer architecture and networking electro-optics, and device physics
Mechanical Engineering and Materials Science: Enrique V. Barrera	713-348-4906 mems@rice.edu www.mems.rice.edu/	Mechanical engineering: mechanics, computational mechanics, stochastic mechanics, fluid dynamics, heat transfer, dynamics and control, robotics, biomedical systems, and aerospace sciences. Materials science: nanotechnology, metals physics, statistical mechanics, metallic solid thermodynamics, materials chemistry, aspects of composites, coatings and thin films, and interface science
Statistics: Katherine B. Ensor	713-348-6032 fax: 713-348-5476 stat@rice.edu www.stat.rice.edu/	Applied probability, Bayesian methods, bioinformatics, biomathematics, biostatistics, data analysis, data mining, density estimation, epidemiology, environmental statistics, financial statistics, image processing, model building, nonparametric function estimation, quality control, risk management, spatial temporal statistics, statistical computing, statistical genetics, statistical visualization, stochastic processes, and time series analysis

SCHOOL OF HUMANITIES

Education:	713-348-4826 www.dacnet.rice.edu/Depts/Education/	Secondary education (See Education Certification below)
English: Susan Wood	713-348-4840 fax: 713-348-5991 engl@rice.edu english.rice.edu/	Medieval through 20th-century English literature, American literature, and theoretical bases of literary criticism and genre theory
French Studies: Michel Achard	713-348-4851 fax: 713-348-5951 fren@rice.edu www.ruf.rice.edu/~fren/	Medieval through contemporary literature, French literary theory, philosophy, and French cultural history

Hispanic Studies: Maarten Van Delden	713-348-5451 fax: 713-348-4863 span@rice.edu hispanicstudies.rice.edu	Medieval, golden age, and modern peninsular Spanish literature, modern Spanish American literature, Hispanic linguistics, second language acquisition, and semiotics and literary theory
History: Peter Carl Caldwell	713-348-4948 fax: 713-348-5207 hist@rice.edu history.rice.edu/	Ancient, medieval history, modern British, French, German, and Balkan history, American Colonial history, Old and New South and Civil War history, legal, constitutional, intellectual, and recent history, military history, history of science, and East Asian and Latin American history
Linguistics: Masayoshi Shibatani	713-348-6010 fax: 713-348-4718 ling@ruf.rice.edu linguistics.rice.edu/	General and cognitive-functional linguistics, syntax and semantics, discourse analysis, typology, language description and change, and computational linguistics
Philosophy: Steven Crowell	713-348-4994 philos@rice.edu philosophy.rice.edu	History of philosophy, metaphysics, ethics, medical ethics, social and political philosophy, and philosophy of law, language, and science
Religious Studies: Jeffrey Kripal	713-348-5201 fax: 713-348-5486 reli@rice.edu reli.rice.edu/	Theological and medical ethics, New Testament and early Christianity, Indo-Tibetan thought and practice, history of Christianity, contemporary continental philosophy of religion, and psychology of religion, Judaism, and Islam

JESSE H. JONES GRADUATE SCHOOL OF MANAGEMENT

Gilbert R. Whitaker, Jr. (Dean)	713-348-4838 fax: 713-348-5251 ricemba@rice.edu jonesgsm.rice.edu/	Earnings management, change communication, financial reporting, accounting standard setting in different countries, stock market volatility, corporate governance, strategic management, decision making, corporate finance, securities markets, marketing strategy, customer satisfaction, corporate performance measurement, customer choice and attitude models, new product diffusion models, service operations, management, computer-human interaction, international business and trade, business-government relationships, leadership, firm valuation, brand equity, and business ethics
George Kanatas (Associate Dean)	713-348-5396 fax: 713-348-5102	
Wilfred C. Uecker (Associate Dean)	713-348-6060 fax: 713-348-5131 oed@rice.edu	

SHEPHERD SCHOOL OF MUSIC

Robert Yekovich (Dean)	713-348-4854 fax: 713-348-5317 musi@rice.edu www.ruf.rice.edu/~musi/	Orchestral studies, performance, conducting, composition, theory, and music history
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WIESS SCHOOL OF NATURAL SCIENCES

Biochemistry and Cell Biology: George Bennett	713-348-4015 fax: 713-348-5154 bioc@rice.edu dacnet.rice.edu/~bioc/	Biochemistry, biophysics, developmental biology, cell biology, genetics, molecular biology, neurobiology, structure and function of nucleic acids and proteins, regulatory processes, biochemistry of lipids, enzymology, NMR and crystallography, cellular regulation, oxygen and electron transport, and molecular genetics of plants, animals, fungi, bacteria, and bacteriophage
Chemistry: Kenton H. Whitmire	713-348-5650 fax: 713-348-5155 chem@rice.edu www.chem.rice.edu/	Synthesis and biosynthesis of organic natural products, synthesis of small cycloalkanes, molecular recognition and biological catalysis, bioinorganic and organometallic chemistry, main group element and transition metal chemistry, high-pressure and high-temperature chemistry, fluorine chemistry, chemical vapor deposition, design of nano phase solids, molecular photo-chemistry and photophysics infrared kinetic spectroscopy,

<i>(Chemistry continued)</i>		laser and NMR spectroscopy, study of, oriented molecular beams, theoretical and computational chemistry, and study of giant fullerene molecules, carbon nanotubes and their derivatives, polymer synthesis and characterization, molecular electronics, and molecular machines
Ecology and Evolutionary Biology: Joan Strassmann	713-348-4919 fax: 713-348-5232 eeb@rice.edu eeb.rice.edu/	Plant community and population ecology, behavioral ecology, sociobiology, molecular evolution, insect diversity, and community structure
Earth Science: Alan Levander	713-348-4880 fax: 713-348-5214 geol@rice.edu earthscience.rice.edu/	Marine geology and geophysics; sedimentology, stratigraphy, paleoceanography, paleoclimatology, evolution of continental margins and carbonate platforms; tectonics, neotectonics, tectonophysics, geodynamics, mantle processes, planetology, and space geodesy; remote sensing, potential fields, reflection and lithospheric seismology, global seismology, wave propagation and inverse theory; kinetics of fluid-solid interactions, low T aqueous geo-chemistry, petrology, and high T geochemistry
Mathematics: Robin Forman	713-348-4829 fax: 713-348-5231 math@rice.edu math.rice.edu/	Differential and algebraic geometry, ergodic theory, partial differential equations, probability and combinatorics, real analysis, complex variables, and geometric and algebraic topology
Physics and Astronomy: F. Barry Dunning	713-348-4938 fax: 713-348-4150 physics@rice.edu www.physics.rice.edu/	Atomic and molecular physics, biophysics, condensed matter and surface physics, nuclear and particle physics, theoretical physics, observational astronomy of star-forming regions, nebulae and galaxies, solar system studies, theoretical astrophysics and space plasma physics, and earth systems science

SCHOOL OF SOCIAL SCIENCES

Anthropology: George Marcus	713-348-4847 fax: 713-348-5455 anth@rice.edu www.ruf.rice.edu/~anth/	Archaeology, anthropological linguistics, social/cultural anthropology, theory, history, and global change
Economics: Peter Hartley	713-348-4875 econ@rice.edu www.ruf.rice.edu/~econ/	Applied microeconomics, economic theory, econometrics, public finance, industrial organization, game theory, monetary economics, labor economics, and micro foundations of macroeconomics
Political Science: T. Clifton Morgan	713-348-4842 poli@rice.edu www.ruf.rice.edu/~poli/	Comparative government and political development in Western Europe, American government including public policy, Congress and intergovernmental relations, and international relations and conflict
Psychology: Randi Martin	713-348-4856 fax: 713-348-5221 psyc@rice.edu www.ruf.rice.edu/~psyc/	Cognitive psychology, cognitive neuropsychology, human factors, and industrial/organizational psychology

EDUCATION CERTIFICATION

Meredith Skura	713-348-4826 Fax: 713-348-5459 educ@rice.edu education.rice.edu/	Secondary Education
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TUITION, FEES, AND EXPENSES

The tuition and fees for graduate students in this section are for the 2004–2005 academic year only and are subject to change in subsequent years. Current tuition and fees for all graduate students, full time and part time:

	Annual	Semester	Hour
Tuition			
All schools except Jones School	\$21,200	\$ 10,600	\$1,178
Jones School MBA			
Start 2004	30,000	15,000	1,667
Start 2003	28,000	14,000	1,556
Jones School EMBA			
Start 2004 (2-year rate)	77,000		
Start 2003 (2-year rate)	72,000		
Fees			
Health service	340	170	
Graduate Student Association	20	10	
Shuttle	50		
Honor Council	2		
Student Organizations Fund	8		
Information technology	120	60	
Jones School activities (Jones School only)	70		
Jones School materials (Jones School only)	600		

Away Status—Students pursuing their studies outside of the Houston area (students on “away” status) must be registered and pay tuition but are not required to pay the fees listed above, with the exception of the information technology fee.

Reduced Tuition—After six semesters of full-time study in one degree program (excluding the summer semesters), continuing students enter a reduced-tuition category of \$1,178 per year (\$589 per semester). Students who are admitted with a relevant master’s degree, i.e., a master’s degree that counts toward a doctoral program at Rice, may become eligible for reduced tuition earlier than those entering a doctoral program without a relevant master’s degree. Semesters credited toward reduced tuition will generally be limited to one degree program. In extraordinary circumstances, the Office of Graduate Studies may consider petitions for exceptions.

Health Insurance—All students, full time or part time—including those on away status—must carry health insurance (see page 76).

Other Fees—Unless students elect a special payment plan, they must pay all tuition and fees for the fall semester by the middle of August, and for the spring semester by the end of the first week of January. Past these deadlines, a late payment penalty of \$135 will be assessed.

Other fees applicable under special circumstances:

Preceptorship (per semester)	\$200
Internship (per semester)	200
Enrollment continuance fee (Study Abroad) (per semester)	125
Graduate application fee	35
Jones School application fee: MBA	100
Jones School application fee: EMBA	100
Part-time registration fee	110
Late registration fee	105
Failure to preregister fee	55

Late course change fee

Adds:

Week 1-2	Free
Week 3-4	\$ 10
Week 5 and after	50

Drops:

Weeks 1-4	Free
Weeks 5-10	10
Week 11 and after	50

Deferred Payment Plan late fee	35
Diploma fee: sheepskin	100
Diploma fee: parchment	35
Diploma fee: facsimile	15
Diploma mailing fee: domestic	22
Diploma mailing fee: air mail	27
Transcript fee	10
Class III registration fee	110
Class III late application fee	75
Class III late registration fee	105
Intramural fee	15
Readmission fee: graduate students only	290
Reinstatement fee: graduate students only	85
Replacement ID	10

For more information, see Refund of Tuition and Fees (pages 44-45).

For \$110 each, graduate students and their spouses may purchase from the Cashier's Office an athletic events sticker, which admits them to all regularly scheduled Rice Athletic events.

FINANCIAL AID

FELLOWSHIPS, SCHOLARSHIPS, AND ASSISTANTSHIPS

A range of fellowships, scholarships, and assistantships are available at Rice. Most graduate students in degree programs requiring a thesis are supported by fellowships or research assistantships.

Rice Graduate Fellowships—Doctoral students with high academic records and strong qualifications receive support through Rice fellowships. In most cases, these fellowships provide a stipend plus tuition for the nine-month academic period. Departments may nominate particularly outstanding entering students for a Rice Presidential Fellowship.

Rice Graduate Tuition Scholarships—Students whose previous records show marked promise but for whom no graduate fellowships are available may receive full or partial graduate tuition scholarships, which do not include a stipend.

Research and Teaching Assistantships—Usually funded from grants and contracts, research assistantships are available in many departments. Qualified students (usually second-year or later) receive these awards to provide assistance on faculty research projects, work that usually contributes to the student's own thesis. In some departments, a limited number of teaching assistantships may be available to advanced students.

Eligibility—Fellowship, scholarship, and assistantship recipients are selected by the individual departments, subject to the approval of the Office of Graduate Studies. Students should send their applications for such awards directly to the department involved.

To receive Rice fellowships, graduate tuition scholarships, or assistantship aid, students must be engaged in full-time graduate study; part-time students and students who are not enrolled are not eligible for such aid.

Students receiving stipends from fellowships or assistantships may not accept any regular paid employment on or off campus without the explicit permission of the department. Full-time students, whether receiving stipend support or not, may not accept paid employment in excess of 20 hours per week.

LOANS AND WORK-STUDY FINANCIAL AID

In addition to fellowships, scholarships, and assistantships, the Office of Student Financial Services offers assistance in the form of loans and federal work-study employment. Interested students must file a Free Application for Federal Student Aid (FAFSA) and a Rice Graduate Financial Aid Application and submit copies of income tax returns and W-2's. The priority deadline to apply is April 15.

To be eligible to apply for loans and federal work-study employment, graduate students must maintain satisfactory academic progress as defined by their departments. Should a graduate student fail to make satisfactory academic progress, the student's aid eligibility will be terminated. Graduate students who enroll for less than 5 hours in a term will not be eligible for financial aid.

Stafford Student Loans—These are low-interest loans made to students attending the university at least half-time. Subsidized Stafford loans require need-based financial aid eligibility, but unsubsidized Stafford loans are available to all students. Stafford loan eligibility is subject to annual and lifetime borrowing limits.

Federal Work-Study Employment—Federal work-study employment funding is available to students who meet eligibility criteria set by the federal government. Earnings are limited to the amount shown on the award letter. A limited number of awards may be available to graduate students.

Private Loan Programs—Private loans are available to graduate and MBA students. These loans are not based on need but do require credit approval from the lender and cannot exceed the student's cost of education, as determined by Rice, minus other resources.

Special Loan Programs—A Gulf Oil Corporation Foundation Loan Fund and the Benjamin S. Lindsey and Veola Noble Lindsey Memorial Loan Fund are available to help students working toward a degree meet their educational expenses, but funds are limited. Interested students may contact the Office of Student Financial Services.

The Mary Lyn and Niles Moseley Loan Fund and the Professor John A. S. Adams, Sr., Memorial Graduate Student Loan Fund—These funds provide financial assistance, in the form of loans, to graduate students at Rice University. Students wishing to apply for such a loan should obtain an application from the Office of Student Financial Services and return the completed application to that office. Guidelines for the program are:

- Individual loans are made for an amount not to exceed \$1,500.
- Loans are made for a period of up to one year and, upon request, may be renewable annually.
- The interest rate applicable to these loans is determined by the university.
- Graduate students must be enrolled on a full-time basis to be eligible to apply for a loan and must maintain full enrollment during the full term of the loan.

- Upon completion, applications are submitted to the vice provost for research and graduate studies for approval.
- Loans are available during the full course of the academic year.
- Loans must be repaid before graduation.

Emergency Loan Fund—Established through gifts from the Graduate Wives Club of 1972–73, the Graduate Student Association, and various faculty members, this fund makes available emergency loans to help graduate students at Rice with short-term needs. Loans are limited to \$250 and must be repaid within three months. In lieu of interest, a charge of \$5 per loan is assessed to maintain the fund.

Summer Aid—Graduate students are eligible to apply for summer loans if they are registered during the summer term. The deadline to apply for summer aid is April 30.

Other Fellowships, Honors, and Prizes—Provisions are made for a variety of fellowships, scholarships, and prizes available to graduates of this and other universities. Memorial fellowships that have been founded and endowed by gift or bequest on the part of friends of Rice University provide stipends enabling the holders to devote their time to study and research in their chosen fields. There are also several industrial fellowships maintained by companies interested in the development of technical fields and the training of competent scientists, engineers, and business executives.

Persons desiring consideration for appointment as fellows should consult with the department in which they wish to do research. However, not all fellowships are available every year.

Return of Title IV Funds—Students who receive federal funds as part of their aid packages and do not complete the academic term may be subject to returning a portion of those funds. Contact student Financial Services for information about policies and procedures regarding the return of Title IV funds.

GRADUATE STUDENT LIFE

GRADUATE STUDENT ASSOCIATION

All full-time students in the graduate program are members of the Graduate Student Association, which is the sole organization representing graduate students as a body. The governing body of this organization is the Graduate Student Association Council, consisting of a representative from each department offering graduate study and a president, vice president, secretary, and treasurer elected by the council. Graduate students also participate in university affairs through their representatives on many standing and ad hoc university committees, such as the Graduate Council, the Research Council, and various department committees.

One of the functions of the Graduate Student Association is to encourage social interaction among graduate students from different departments. To that end, the association organizes a variety of social activities open to all members of the graduate student body.

HOUSING FOR GRADUATE STUDENTS

The Rice Graduate Apartments are housed in a garden-style complex located on a 2.7-acre site just north of campus. The project features attractive landscaping and good lighting in all common areas, designed to enhance both the security and the aesthetics of pedestrian, bike, auto paths, parking, and recreational areas.

Electronically controlled gates for both pedestrian and vehicular paths are provided. Handicap accessibility also is an important feature. A shuttle bus travels back and forth between the apartments and campus.

There are 112 units, including one-bedroom, two-bedroom, four-bedroom, and efficiency apartments. The complex is designed with a centrally located space for social activities, a laundry room on each floor, a study room equipped with computers, enclosed areas with locks for bike racks, and two courtyards. Every apartment has a living area, a fully equipped kitchen, cable TV connection, and a network drop for a personal computer. Housing is assigned on a space-available basis. Call 713-348-GRAD (4723) for further information.

The Morningside Square Apartments are two-story 1950s-vintage units located in a quiet neighborhood adjacent to Rice Village. They are within a short walking distance to campus, restaurants, and shopping areas. The complex is attractively landscaped and offers gated and covered parking.

There are 53 units, including one-bedroom, two-bedroom, and three-bedroom apartments. The common hallways, bedrooms, and living rooms feature oak hardwood flooring. Kitchens are equipped with a refrigerator and gas range. All units have ceiling fans, a gas furnace, and window air conditioners. Basic cable TV is provided, and a coin-operated laundry is available on site. Apartments are assigned on a space-available basis. Call 713-524-1275 for further information.

The Information Desk, the Office of Student Activities, and the Graduate Student Association keep records of available rooms and apartments listed with the university by area landlords. The daily newspaper and a weekly *Greensheet* are other sources of rental housing information. Incoming graduate students should arrive in Houston several days early to allow themselves time to find suitable housing.

HEALTH INSURANCE REQUIREMENTS FOR GRADUATE STUDENTS

Paying the student health service fee gives graduate students access to both the Student Health Service and Rice Counseling Center (see pages 11-12). New graduate students may not register for or attend classes until they have completed and returned the health data form to Rice and have met the immunization and TB screening requirements.

All graduate students must have health insurance purchased through Rice or provided by an outside source. Students may purchase insurance through the university at two levels of coverage. Rice's group coverage for the 2004-2005 academic year is effective from 12:01 A.M., August 15, 2004, until 12:01 A.M. August 15, 2005. Dependent coverage is also available. A description of the policy and the application form can be found on the Web at <http://studenthealthinsurance.rice.edu>. A waiver form, if outside insurance is provided, also can be found at this site. Students should submit either the application or waiver by August 15 each year.

CLASS III STUDENTS IN NONDEGREE PROGRAMS

Students with a 3.00 (B) or better grade average and an undergraduate or graduate degree from an accredited college or university may apply for admission as Class III students. These students may take courses for credit without being admitted to a specific degree program. Registration requires the permission of the instructor and approval by the vice provost for research and graduate studies. All Class III applications to accounting and management courses require approval of the Jesse H. Jones Graduate School. Class III students must register for at least 3 hours and cannot take courses on a pass/fail or satisfactory/unsatisfactory basis. Class III students must receive at least a B for all classes taken or they will not be allowed to remain in the Class III program.

Students may not use courses taken under this arrangement to fulfill the requirements for a Rice degree unless and until they have been accepted into a degree program by an academic department (as well as, in the case of graduate students, by the vice provost for research and graduate studies) and received department approval; students are responsible for obtaining the proper approvals. Students may request that the department allow up to 3 courses taken as Class III to count toward their graduate degree.

APPLICATIONS FOR CLASS III

Applications and course request forms are available from the Office of Graduate Studies. Official transcripts from all colleges and universities the student has attended should be mailed directly by the institutions to the Office of Graduate Studies. Students who were previously Class III students must complete a new application (without transcripts) for each such semester. All application materials are due by the workday closest to August 1 for fall semester courses and December 1 for spring semester courses. Late applications are not considered after classes have begun. Individuals applying as Class III students for the summer term should apply to the Summer School for College Students (see page 36).

TUITION AND FEES FOR CLASS III

The tuition for 2004-2005 is \$1,178 per semester hour, plus a \$110 registration fee each semester. All fees are payable during registration. Students failing to submit their applications by the deadline must pay a late application fee of \$75, and students registering after the second week of class must pay a \$105 late registration fee and may also have to pay a late payment fee. For some courses, students may be charged for computer time. If a class fills with degree students, instructors may drop Class III students up to the end of the third week of class. In that case, the tuition (less \$30 of the registration fee) will be refunded. Please see page 36 for information pertaining to summer school.

DEPARTMENTS AND INTERDISCIPLINARY PROGRAMS



AIR FORCE SCIENCE

COMMANDER AND PROFESSOR

Colonel David L. Mintz

ASSOCIATE PROFESSORS

Captain Vince Terrell

Captain Kareem Owens

1st Lieutenant Malcolm Byrd

The Air Force ROTC program develops responsible, competent men and women prepared to assume leadership positions as commissioned officers in the active duty United States Air Force. Upon completion of the curriculum, students will have an understanding of the core values and the professional discipline of a military career. For more information on the Air Force Science program, contact the Air Force Science Department at the University of Houston by calling 713-743-4932.

COURSE CREDIT

ROTC classes may be taken for elective credit toward any degree plan at the University of Houston as well as Rice University. Freshman and sophomore level classes are open to all students. No military obligation is incurred as a result of enrollment in these courses. Junior and senior level courses are more restrictive and do require a military obligation. ROTC scholarship students also incur a military obligation.

FOUR-YEAR PROGRAM

The General Military Course (GMC) is the first half of the Four-Year Program and is taken during the freshman and sophomore years. This program allows the student to try out Air Force ROTC without obligation (unless the student is on an Air Force ROTC scholarship).

During the first two years, the student will learn about the Air Force and the historical development of aerospace power.

During the summer preceding the junior year, the student will compete for the opportunity to attend a four-week Field Training Unit. Successful completion of field training is mandatory for entrance into the Professional Officer Course (POC), the junior and senior years of the Four-Year Program.

As a junior, the student will study the leadership and management techniques needed to become an effective Air Force officer.

During the senior year, students study the national security policy process and regional issues while preparing for entrance to active duty.

Enrollment in the POC is open to graduate students if they have four semesters of school remaining. Each semester of the POC consists of three classroom hours of instruction as well as Leadership Laboratory each week.

TWO-YEAR PROGRAM

The two-year program bypasses the General Military Course (GMC) portion of the Four-Year Program and leads directly into the Professional Officer Course (POC).

This route is the best option for junior college transfer students, current college sophomores, college juniors and active duty personnel who have two years of school remaining. The student can be completing an undergraduate degree, a graduate degree, or a combination of the two. Requirements for POC include:

1. Attending an extended Field Training Unit the summer prior to entering the two year program or the summer between the junior and senior year
2. Achieving an acceptable score on the Air Force Officer Qualifying Test (AFOQT)
3. Passing a complete medical physical
4. Passing the Air Force Physical Fitness Test (PFT)

Students entering the POC must enter into a contract to pursue and accept a regular commission in the active Air Force.

LEADERSHIP LABORATORY

As an Air Force ROTC cadet, each student will be required to attend an additional class known as Leadership Laboratory.

Although it is not part of the academic class requirement, it is an essential part of officer training. Leadership Laboratory is a motivational, cadet-centered program where the student gains valuable leadership and managerial experience while learning about the Air Force way of life. On occasion, the student will have the opportunity to hear guest speakers discuss a variety of interesting topics.

AFROTC SCHOLARSHIP OPPORTUNITIES

Air Force ROTC offers four different scholarship opportunities for students at the University of Houston and Rice University:

In-College Scholarship Program (ICSP)—is a highly competitive scholarship program aimed primarily at college freshmen and sophomores in any major (students with a bachelor's degree can compete to earn a master's degree). The ICSP awards cover tuition capped at either \$15,000 per year plus \$510 per year for books or \$9,000 per year plus \$510 per year for books.

The Express Scholarship Program—is operated on a fully qualified basis: those who meet the qualifications are awarded the scholarship. Though the list of eligible college majors differs from year to year, the express scholarship pays up to \$15,000 tuition per year and \$510 for books. The processing of the scholarship award is completed at the local detachment.

General Military Course Incentive (POCI)—is a fully qualified scholarship program open to college students in the spring semester of their sophomore year. This program is open to students in any major. The GMCI provides up to \$1,500 in tuition and fees for eligible students. The GMCI does not pay for books.

Professional Officer Course Incentive (POCI)—is a fully qualified scholarship program open to college students in their junior or senior year (or to those with a bachelor's degree who will pursue a master's degree). POCI is open to any major. The POCI provides up to \$3,000 in tuition and fees each year and \$450 per year for books. POCI may be paid for up to two years.

STIPEND

All AFROTC scholarship recipients and POC cadets receive a nontaxable monthly stipend. The annual stipend amount ranges from around \$2,000 per year to 4,000 per year depending on the recipient's enrollment year.

For additional information on AFROTC scholarship opportunities, please visit the AFROTC website at www.afrotc.com or call 1-800-4AFROTC.

FIELD TRAINING (FT)

Cadets completing the General Military Course attend four weeks of field training (FT) during the summer at a selected Air Force base. Those who have not completed the GMC attend an extended FT Unit. This rigorous program of leader-

ship training, physical conditioning and academics assesses the cadet's potential to be an Air Force officer.

Cadets also receive survival and firearms training, career information, and an opportunity for a military aircraft orientation flight. Cadets receive travel pay and daily pay for FT.

PROFESSIONAL DEVELOPMENT TRAINING (PDT)

Cadets are eligible to compete to attend PDT during summer months.

PDT consists of several programs, including:

- Army Airborne
- United States Air Force Academy (USAFA) Survival Training
- USAFA Soaring
- USAFA Freefall Parachute Training
- Cadet Training Assistant
- The British Exchange program

Cadets receive travel pay and daily pay for the majority of these programs.

For more information contact Colonel David Mintz at 713-743-4932, or visit the University of Houston Air Force website at www.uh.edu/afrotc.

See AFSC in the Courses of Instruction section (these are University of Houston listings).

ANCIENT MEDITERRANEAN CIVILIZATIONS

THE SCHOOL OF HUMANITIES

DIRECTOR AND ADVISER

Michael Maas

PROFESSORS

James D. Faubionp

Werner H. Kelber

Michael Maas

Roderick J. McIntosh

Susan Keech McIntosh

Donald Ray Morrison

Harvey E. Yunis

ASSOCIATE PROFESSORS

Hilary S. Mackie

Carol E. Quillen

Paula Sanders

ASSISTANT PROFESSORS

David Cook

Eva Haverkamp

Matthias Henze

Scott McGill

Caroline Quenemoen

LECTURER

Kristine Gilmartin Wallace

DEGREE OFFERED: BA

This interdisciplinary major in the cultures of ancient Greece and Rome, Judaism, early Christianity, and early Islam, as well as their antecedents, explores these traditions both for their intrinsic interest and for the contributions each has made to contemporary Western society. This combined focus on ancient cultural history in its broadest sense and on perspectives offered by cultural criticism enables students to examine the beginnings of the civilization in which they now participate.

Courses for this major address common questions about the transmission and transformation of cultures in the ancient Mediterranean world. Students examine sources, such as texts, artifacts, and institutions that illuminate the process. They study how shifting cultural centers and frontiers in this world are delineated, and they explore the general integration and disintegration of specific ancient cultures. This major also offers opportunities for archaeological fieldwork and study abroad.

Rice is a sponsor of the American School of Classical Studies at Athens, the American School of Oriental Research, and the Intercollegiate Center for Classical Studies in Rome. Students majoring in Ancient Mediterranean Civilizations are encouraged to study in these programs as well as in the College Year in Athens program.

DEGREE REQUIREMENTS FOR BA IN ANCIENT MEDITERRANEAN CIVILIZATIONS

Students must take one course from three of the five following categories: 1) Graeco-Roman Civilization, 2) Islamic Civilization, 3) Jewish Civilization, 4) Christian Civilization, and 5) Archaeological Methods & Theory. In addition, students must take one course that addresses the creation, transmission, and reception of traditions in the Mediterranean world. Courses that meet this requirement are designated as "Themes Across Time."

Students must also fulfill a comparative requirement by taking either one course that, in and of itself, treats two different cultural traditions (designated "Comparative") or two separate courses on similar themes but from different cultures (e.g. Women in Greece & Rome, Women in the Islamic World). Although not required, courses in ancient languages are recommended. A minimum of five courses must be taken at the 300 level or above.

For general university requirements, see the Graduation Requirements in this publication. Majors in Ancient Mediterranean Civilizations must complete at least thirty (30) semester hours (10 courses). Students must take a core course (AMC 200, CLAS 207, or CLAS 208) near the beginning of their studies, and may select from the following courses to fulfill their requirements for the major.

Please note that not all courses listed below will be offered during the academic year. For a current list of AMC courses that will be offered in fall 2004 and spring 2005, please visit the AMC web site at <http://amc.rice.edu>.

Core Courses

AMC 200 *Origins of Western Civilizations: Athens, Rome, and Jerusalem*

CLAS 207 *Greek Civilization: From Homer to Alexander the Great*

CLAS 208 *Roman Civilization*

Graeco-Roman Civilization

AMC 200 *Origins of Western Civilizations: Athens, Rome, and Jerusalem*

ANTH 325 *Self, Sex, and Society in Ancient Greece*

ANTH 363 *Early Civilizations*

CLAS 101 *Freshman Seminar: Socrates: The Man and His Philosophy*

CLAS 207 *Greek Civilization: From Homer to Alexander the Great*

CLAS 208 *Roman Civilization*

CLAS 209 *Greek and Roman Drama*

CLAS 220 *The Novel in Classical Antiquity*

CLAS 222 *Perspectives on Greek Tragedy*

CLAS 225 *Women in Greece and Rome*

CLAS 311 *Text as Property*

CLAS 312 *Greek Art and Architecture*

CLAS 315 *Roman Art and Architecture*

CLAS 316 *Democracy and Political Theory in Ancient Greece*

CLAS 318 *The Invention of Paganism in the Roman Empire*

CLAS 335 *Classical Mythology*

CLAS 336 *The Origin of the Languages*

CLAS 337 *Epic and Novel*

CLAS 351 *Epic and Saga*

GREE 101 *Introduction to Ancient Greek I*

GREE 102 *Introduction to Ancient Greek II*

GREE 201 *Intermediate Greek I: Prose*

GREE 202 *Intermediate Greek II*

GREE 301 *Advanced Greek I*

HART 204 *Art as Civilization*

HART 218 *Special Topics: Ancient Greek Sites*

HART 219 *Independent Study: Ancient Art*

HART 228 *Special Topics: Christian, Byzantine, and Islamic Art*

HART 229 *Independent Study: Christian, Byzantine, and Islamic Art*

HART 310 *The First Civilizations*

HART 311 *Theme of Fertility*

HART 312 *Greek Art and Architecture*

HART 313 *Discovery of the Mind*

HART 315 *Roman Art and Architecture*

HART 320 *Age of Augustus*

HART 417 *Buried Cities: The Art and Architecture of Akrotiri, Pompeii, and Herculaneum*

HART 428 *Special Topics: Early Christian, Byzantine, and Islamic Art*

HART 429 *Independent Study: Early Christian, Byzantine, and Islamic Art*

HIST 113 *God, Time and History*

HIST 151 *Freshman Seminar: The Hero and His Companion from Gilgamesh to Sam Spade*

HIST 200 *Origins of Western Civilizations: Athens, Rome, and Jerusalem*

HIST 207 *Greek Civilization: From Homer to Alexander the Great*

HIST 262 *Rome: City and Empire*

HIST 289 *Greek and Latin Readings*

HIST 307 *Imperial Rome from Caesar to Diocletian*

HIST 308 *The World of Late Antiquity*

HIST 460 *Advanced Seminar in Ancient History*

LATI 101 *Elementary Latin I*

LATI 102 *Elementary Latin II*

LATI 201 *Intermediate Latin I: Prose*

LATI 202 *Intermediate Latin II*

LATI 301 *Advanced Latin I: Literature of Exile in the Roman Tradition*

LATI 302 *Advanced Latin: Roman Epic*
 LATI 303 *Advanced Latin: Plautus and Terence*
 LATI 310 *Advanced Latin: Virgil*
 LATI 311 *Latin Pastoral Poetry*
 LATI 312 *Advanced Latin: Ovid*
 LATI 313 *Cicero and Catullus: Literature and Society in the Roman Republic*

Islamic Civilization

HIST 281 *Pre-Modern Middle East History: The Middle East from the Prophet Muhammad to Muhammad Ali*
 RELI 141 *Introduction to Islam*
 RELI 221 *The Life of the Prophet Muhammad*
 RELI 350 *Scriptures in Monotheistic Faiths*
 RELI 354 *Asian Apocalyptic Movements*
 RELI 441 *Popular Religion in the Middle East*

Jewish Civilization

RELI 209 *Introduction to Judaism*
 RELI 210 *Ethics in Judaism*
 RELI 350 *Scriptures in Monotheistic Faiths*

Christian Civilization

RELI 122 *The Bible and Its Interpreters*
 RELI 125 *Introduction to Biblical Hebrew I*
 RELI 126 *Introduction to Biblical Hebrew II*
 RELI 127 *Intermediate Biblical Hebrew Hebrew III*
 RELI 128 *Intermediate Biblical Hebrew Hebrew IV*
 RELI 200 *The Bible in Western Tradition*
 RELI 223 *Qu'ran and Commentary*
 RELI 282 *Introduction to Christianity*

RELI 309 *Gospel and Tradition*
 RELI 350 *Scriptures in Monotheistic Faiths*
 RELI 354 *Asian Apocalyptic Movements*
 RELI 383 *The Dead Sea Scrolls*
 RELI 410 *Apocalypse Then and Now*

Archaeological Methods and Theory

ANTH 203 *Human Antiquity: An Introduction to Physical Anthropology and Prehistory*
 ANTH 205 *Introduction to Archaeology*
 ANTH 345 *The Politics of the Past: Archaeology in Social Context*
 ANTH 362 *Archaeological Field Techniques*
 ANTH 363 *Early Civilizations*
 ANTH 425 *Advanced Topics in Archaeology*
 ANTH 460 *Advanced Archaeological Theory*

Themes Across Time

AMC 200 *Origins of Western Civilizations*
 ANTH 363 *Early Civilizations*
 HART 310 *The First Civilizations*

Comparative

CLAS 225 *Women in Greece and Rome*

Other Courses

HART 101 *Introduction to the History of Western Art: Prehistoric to Gothic*
 PHIL 201 *History of Philosophy I*
 PHIL 301 *Ancient and Medieval Philosophy*
 PHIL 307 *Social and Political Philosophy*
 PHIL 327 *History of Social and Political Philosophy*
 PHIL 501 *Seminar in Ancient and Medieval Philosophy*

See AMC in the Courses of Instruction section.

ANTHROPOLOGY

THE SCHOOL OF SOCIAL SCIENCES

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DEGREES OFFERED: BA, MA, PHD

The major in anthropology has 2 areas of concentration: cultural anthropology and archaeology. The focus in cultural anthropology is on contemporary theoretical issues. By reading primary sources, students gain an exposure to the styles of argument and reasoning of a broad range of theorists. They can then engage in the ongoing discussion and definition of central problems within the field. Fieldwork and ethnography are important in the doctoral research.

In archaeology, the focus is on research skills in the library, the field, and the laboratory. Most students also develop at least one analytical skill, such as remote sensing, archaeological statistics, osteology, or geomorphology, drawing on the university's extensive laboratory and computer facilities.

Students may organize a major in one or both fields or combine a major in anthropology with one in another discipline.

DEGREE REQUIREMENTS FOR BA IN ANTHROPOLOGY

For general university requirements, see Graduation Requirements (pages 14-15). Students majoring in anthropology must:

- Complete a total of 30 semester hours of departmental courses (10 courses), at least 18 of which should be at the 300 level or above
- Have a plan of study approved by the undergraduate adviser

With department approval, students may substitute for departmental courses at most 6 hours of courses from outside the major that are related to their plan of study. The department recommends that students intending to pursue graduate study acquire a reading knowledge of 1 or 2 European languages.

Honors Program—Majors considering a career in anthropology should apply to the honors program, as should those who wish to include advanced training and an intensive, individual research project in their undergraduate education. Anthropology faculty determine acceptance into the program. More information is available from the department office; see also Honors Programs (page 26).

DEGREE REQUIREMENTS FOR MA AND PHD IN ANTHROPOLOGY

Because each field of specialization offers different opportunities for training and different research orientations, the department seeks applicants with a defined interest in either cultural anthropology or archaeology; an undergraduate background in anthropology is desirable but not required. Entering students devise a detailed first-year plan of study and provisional plans for succeeding years in consultation

with an adviser. The plan should emphasize broad training in the selected field before the eventual definition of a project for dissertation research. For general university requirements, see Graduate Degrees (pages 57-58).

MA Program—Graduate students may earn the MA after obtaining approval of their candidacy for the PhD. For the MA as a terminal degree, students must complete:

- 30 semester hours of approved course work
- 1 of the 3 special papers required for the PhD
- A thesis

PhD Program—For the PhD degree, students must accomplish the following:

- Complete 3 substantial papers, each emphasizing an analytical, research, and writing skill appropriate to their field of specialization (should be completed during the first two years of study)
- Demonstrate reading competency in 1 foreign language
- Prepare a satisfactory proposal for dissertation research, based in substantial part on field research
- Complete and defend the dissertation

Special Options—The department will arrange **seminars and tutorials** on any topic relevant to a student's training; these seminars may be conducted in supervisory consultation with scholars in other disciplines as well as with adjunct faculty. Students interested in the specialized field of **medical anthropology** may take advantage of the extensive resources of the Texas Medical Center through ties established with the University of Texas School of Public Health and Graduate School of Biomedical Sciences; students may earn degree credit for formal courses taken at both schools.

Financial Support—All first-year students receive the same level of support: a combination of graduate fellowships and tuition scholarships. These awards are renewed for a further two years of study.

See ANTH in the Courses of Instruction section.

ARCHITECTURE

THE SCHOOL OF ARCHITECTURE

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Danny M. Samuels

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Mark Wamble

WORTHAM FELLOW IN ARCHITECTURE

John Bacus

DEGREES OFFERED: BA, BARCH, MARCH, MARCH IN URBAN DESIGN, DARCH

The principal goal of the School of Architecture is to contribute to a more humane environment. The school focuses on teaching and research, the development of a broad liberal education for undergraduates in the allied sciences and arts of architecture, and professional graduate and postgraduate education in architecture and urban design. Intimate student-faculty interaction, academic freedom, and unrestricted institutional cooperation within and outside the university are distinctive qualities of the architecture degree programs at Rice.

"In the United States, most state registration boards require a degree from an accredited professional degree program as a prerequisite for licensure. The National Architectural Accrediting Board (NAAB), which is the sole agency authorized to accredit U.S. professional degree programs in architecture, recognizes two types of degree: the Bachelor of Architecture and the Master of Architecture. A program may be granted a six-year, three-year, or two-year term of accreditation, depending on its degree of conformance with established educational standards.

Masters degree programs may consist of a pre-professional undergraduate degree and a professional degree, which, when earned sequentially, comprise an accredited professional education. However, the professional degree is not, by itself, recognized as an accredited degree."—National Architectural Accrediting Board

The undergraduate programs maintain a balance between academic studies and professional practice. Lectures and other public programs, visiting faculty, scholarly presentations, and the Preceptorship Program, which provides a one-year

internship in outstanding architectural offices throughout the U.S., Europe, and Japan, all complement the school's core of distinguished teachers and practitioners.

The graduate programs have three areas of emphasis: architectural design, with particular attention paid to history, theory, and practice; urban design, where the concern is the emerging form of the American city; and research in computer visualization, which uses the resources of the state-of-the-art Rice Advanced Visualization Lab.

DEGREE REQUIREMENTS FOR BA IN ARCHITECTURE OR ARCHITECTURAL STUDIES

For general university requirements, see Graduation Requirements (pages 14-15). The conditions specified here for each major also satisfy the university distribution requirements.

BA in Architecture—The curriculum for architecture majors is divided into a foundation sequence taken in the freshman and sophomore years and a preprofessional sequence taken in the junior and senior years. The foundation sequence consists of four semesters of design studios and other related courses in architecture. The first-semester studio develops basic design skills through directed explorations and problem-solving exercises in form, texture, color, material, and structures. In the subsequent 3 studios, through a carefully sequenced series of exercises, students are introduced to a broad range of architectural design issues, processes, and methods. Students are required to take 4 courses in the history and theory of art and architecture during the freshman and sophomore years in addition to two semesters of architectural technology. They must also complete university distribution requirements. It is recommended that students take an introductory drawing course during their first two years of study to develop visual skills.

Students who satisfactorily complete the foundation sequence may, upon approval of their major, enter the junior and senior year preprofessional sequence. The fall studios for the third and fourth years are organized around the workshop model and emphasize complex building/computer applications and urban design issues, respectively. The spring studios are vertically integrated, allowing students to select offerings emphasizing specialized design topics such as technology, landscape, historical precedent, and urban design. During the third and fourth years, students are required to take 2 additional technology courses and to fulfill all remaining school or university distribution requirements. Students wishing to pursue the professional degree in architecture may apply for admission to the Bachelor of Architecture (BArch.) degree program during the second semester of the fourth year.

BA in Architectural Studies—Students who have been admitted as architecture majors and who have successfully completed the two-year foundation program may choose the architectural studies curriculum. The first four semesters of the curriculum are identical to the foundation sequence of the architecture major except for the omission of 1 technology course. Subsequent requirements are the completion of 1 additional studio and 4 elective courses in architecture. The program provides basic preparation for later professional study while allowing students to pursue other academic interests in depth.

TYPICAL CURRICULUM FOR BA IN ARCHITECTURE

First Semester

ARCH 101 *Principles of Architecture I*
 HART 101 *Introduction to History of Art*
 PHYS 101 *Mechanics (with lab)*
 LPAP 101 *Lifetime Physical Activities*
 Approved architecture-restricted distribution
 course in humanities

Second Semester

ARCH 102 *Principles of Architecture I*
 ARCH 132 *Freshman Seminar*
 HART 102 *Introduction to History of Art*
 LPAP 102 *Lifetime Physical Activities*
 MATH 101 *Single Variable Calculus*
 Approved architecture-restricted distribution
 course in humanities

Third Semester

ARCH 201 *Principles of Architecture II*
 ARCH 207 *Introduction to the Design of Structures*
 ARCH 345 *Architecture and the City I*
 Studio Art Elective*
 Elective*

Fourth Semester

ARCH 202 *Principles of Architecture II*
 ARCH 214 *Design of Structures II*
 ARCH 346 *Architecture and the City II*
 Approved architecture-restricted distribution
 course in social sciences
 Elective*

Fifth Semester

ARCH 301 *Principles of Architecture III*
 ARCH 315 *Building Climatology*
 Architectural Theory Elective
 Elective*
 Elective*

Sixth Semester

ARCH 302 *Principles of Architecture III*
 ARCH 316 *Design of Structures III*
 Elective*
 Elective*
 Elective*

Seventh Semester

ARCH 401 *Principles of Architecture IV*
 Elective*
 Elective*
 Elective*

8th Semester

ARCH 402 *Principles of Architecture IV*
 Elective*
 Elective*
 Elective*

*All courses must be selected to satisfy both architecture major requirements and university distribution requirements.

DEGREE REQUIREMENTS FOR A BACHELOR OF ARCHITECTURE (BARCH)

The Bachelor of Architecture program is only open to students who have completed the undergraduate preprofessional architecture program at Rice. Upon admission, students are assigned a preceptorship, which takes place immediately after receipt of the Bachelor of Arts in Architecture degree. The preceptorship program balances academic learning with professional experience. Qualified students who have been admitted to the BArch. degree program are assigned to work for a year in the United States or abroad with leading architectural offices designated by the school as preceptors. The BArch. degree requires the successful completion of the BA in architecture, completion of the two-semester preceptorship, and completion of 2 graduate studios and 5 approved lecture or seminar courses.

PRECEPTORS**Allied Works**

Portland

Arquitectonica

Miami

Backen Arrigoni & Ross, Inc.

San Francisco

Cambridge Seven Associates

Cambridge

Gensler

Houston, London, Los Angeles,

San Francisco, Santa Monica

Michael Graves Architects

Princeton

Kohn Pedersen Fox, Architects

London, New York

Lake/Flato Architects

San Antonio

Machado-Silvetti Associates

Boston

Richard Meier and Partners

Los Angeles

Mitchell Giurgola

New York

NBBJ

Seattle

Office dA, Inc

Boston

Ong & Ong Architects

Singapore

Pei, Cobb, Freed & Partners

New York

Cesar Pelli & Associates

New Haven

Renzo Piano Building Workshop

Genoa, Paris

Robert A. M. Stern Architects

New York

Rogers Marvel Architecture

New York

SOM

San Francisco

Venturi Scott-Brown & Associates

Philadelphia

Weiss/Manfredi Architects

New York

Zimmer Gunsul & Frasca

Los Angeles

MASTER OF ARCHITECTURE

The Master of Architecture (MArch) program prepares graduates for a full range of professional activities in the field of architecture. It is offered to individuals who possess a bachelor's degree. Students follow a course of study in all four areas of the curriculum: design; history, theory, and criticism; structures, practice, and environments; and computing, logic, and representation. These areas of study are sustained by groups of courses from which students may choose offerings according to the requirements of their particular program. Strong emphasis is given to developing design skills, logic, and imagination through an intensive series of design studio courses. Students are also required to prepare an independent thesis before graduating. A potential exists for dual degrees.

The Master of Architecture program is accredited by the National Architectural Accrediting Board (NAAB). It leads to the degree of Master of Architecture, which qualifies graduates to take the state professional licensing examination after completing the required internship in an architectural office.

Programs of Study—Three program options are available at the Master of Architecture level. Options 1, 2, and 3 differ according to the bachelor's degree received before entering the graduate program.

OPTION 1

Seven-Semester Program—Option 1 is offered to individuals who hold a four-year undergraduate degree with a major in a field other than architecture. Preference for admission is given to those who have completed a balanced education in the arts, sciences, and humanities. A minimum of two semesters of

college-level courses in the history of art and/or architecture are recommended; so is a minimum of one semester of college-level courses in mathematics or physics. Previous preparation in the visual arts is also desirable as are courses in philosophy, literature, and economics.

To graduate, students must complete a four-semester core curriculum (76 credit hours), which is followed by a three-semester advanced curriculum (57 credit hours). Course work in both core and advanced curricula consists of 7 studios (including thesis) and 20 distribution courses (133 credit hours).

Core Curriculum

First Semester

ARCH 501 *Core Design Studio I*

ARCH 507 *Introduction to Design of Structures II*

ARCH 633 *Introduction to Computer Applications in Architecture*

ARCH 685 *Architecture and Society I*

Second Semester

ARCH 502 *Core Design Studio II*

ARCH 514 *Design of Structures II*

ARCH 636 *Computer Aided Design in Architecture*

ARCH 686 *Architecture and Society II*

Third Semester

ARCH 503 *Core Design Studio III*

ARCH 515 *Design of Structures III*

ARCH 683 *20th-Century History of Ideas in Architecture*

Dist. Elective (Comp., Log., and Repr.)

Fourth Semester

ARCH 504 *Architectural Problems*

ARCH 516 *Building Climatology*

ARCH 623 *Professionalism and Manag. in Architecture*

Dist. Elective (Hist., Theory, and Crit.)

Advanced Curriculum

Fifth Semester

ARCH 601 *Architectural Problems*

Dist. Elective (Hist., Theory, and Crit.)

Dist. Elective (Comp., Log., and Repr.)

Elective

Sixth Semester

ARCH 602 *Architectural Problems*

ARCH 702 *Pre-Thesis Preparation*

Dist. Elective (Struct., Pract., and Env.)

Elective

Seventh Semester

ARCH 703 *Thesis Studio* or equivalent

Elective

Elective

OPTION 2

Five-Semester Program—Option 2 is offered to individuals who hold a four-year undergraduate degree with a major in architecture. Preference for admission is given to those who have successfully completed between four and six semesters of undergraduate design studio as well as undergraduate courses that are analogous to those given in the first year of Option 1. A minimum of two semesters of college-level courses in the history of art and/or architecture are recommended; so is a minimum of one semester of college-level courses in mathematics and physics.

Students in this program enter into the second year of the core curriculum (two semesters, 38 credit hours), followed by the advanced curriculum (three semesters, 57 credit hours). Course work in both core and advanced curricula consists of 5 studios (including thesis) and 14 distribution courses (95 credit hours).

First SemesterARCH 503 *Core Design Studio III*ARCH 515 *Design of Structures III*ARCH 683 *20th-Century History of Ideas in Architecture*

Dist. Elective (Comp., Log., and Repr.)

Second SemesterARCH 504 *Architectural Problems*ARCH 516 *Building Climatology*ARCH 623 *Professionalism and Manag. in Architecture*

Dist. Elective (Hist., Theory, and Crit.)

Advanced Curriculum

Third SemesterARCH 601 *Architectural Problems*

Dist. Elective (Hist., Theory, and Crit.)

Dist. Elective (Comp., Log., and Repr.)

Elective

Option 3: Three-Semester Program—Option 3 is offered to individuals who hold a professional degree in architecture (BArch.), or its equivalent from a foreign university. Preference for admission is given to those who have significant practical experience in architecture and who have demonstrated high achievement in design.

To graduate, students must complete a three-semester advanced curriculum of elective courses. Course work consists of 3 studios (including thesis) and 8 distribution courses (57 credit hours).

Thesis Requirement—All MArch candidates are required to develop a thesis in partial fulfillment of graduate degree requirements. Students are asked to demonstrate their ability to independently undertake research and analysis as well as develop a hypothesis and a thorough demonstration of the thesis. This must take the form of either a research thesis (written thesis) or a thesis with a design demonstration (design thesis). Both thesis formats must address architectural consequences that may be derived from within or outside conventional boundaries of the architectural discipline.

Thesis preparation begins in the next-to-last semester with a 3-hour independent study course leading to the submission of a thesis proposal and the selection of a thesis director plus two faculty members as readers. While the thesis is independent work carried out by the student under the direction of a chosen adviser, it is organized as a studio in the fall term of the academic year. The thesis studio provides a support setting for both formal and informal review processes throughout the thesis semester. In early January, thesis projects are reviewed by a panel of guest critics and publicly presented in the Farish Gallery.

MASTER OF ARCHITECTURE IN URBAN DESIGN

The Master of Architecture in Urban Design (MAUD) program prepares graduates for a full range of professional activities in the field of urban design. It is offered to individuals who already hold a professional degree qualifying them for registration

Fourth SemesterARCH 602 *Architectural Problems*ARCH 702 *Pre-Thesis Preparation*

Dist. Elective (Struct., Pract., and Env.)

Elective

Fifth SemesterARCH 703 *Thesis Studio**

Elective

Elective

*or an approved alternative

as architects or landscape architects. The MAUD program makes extensive use of Houston as a setting for case studies and design problems. During the first year, strong emphasis is given to developing design skills, logic, and imagination through an intensive series of urban design studio courses. Three additional courses in urban history, planning, and design are required each semester. Students are also required to prepare an independent thesis during their third semester.

DOCTOR OF ARCHITECTURE

Admission to the Doctor of Architecture program requires either a bachelor's or master's degree in architecture and a detailed statement of research concerns and anticipated array of investigation. A student entering with a master's degree normally takes three semesters of course work before the qualifying examination. A student with a bachelor's degree normally requires two to five semesters of course work before the qualifying examination. Preparation for doctoral candidacy may include a foreign language or computer skills. Specific course requirements are established individually when a student is admitted to the program.

After successful completion of all required course work, students may apply to take the qualifying examination after submitting a prospectus outlining their research programs for the doctoral dissertation. The dissertation must represent an original contribution to knowledge in the field of architecture. Completion and successful defense of the dissertation will take a minimum of one year. University requirements for thesis (dissertation) preparation and defense must be carefully followed. The time limit for successful defense of the dissertation is established by university policy. Students should not expect to complete the Doctor of Architecture program in less than four years of full-time study.

See ARCH in the Courses of Instruction section.

ART HISTORY

THE SCHOOL OF HUMANITIES

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ADJUNCT LECTURER

Charles Dove

DEGREES OFFERED: BA, BFA

The Department of Art History offers a wide range of courses in European, American, Asian, and Middle Eastern/Islamic art history with additional strengths in architectural history and film and media studies. The major in art history is structured to expose students to the chronological, geographical, and methodological breadth of the field of scholarship.

DEGREE REQUIREMENTS FOR BA IN ART HISTORY

For general university requirements, see Graduation Requirements (pages 14–15).

Students with a single major in Art History must complete 36 hours (12 courses) and double majors must complete 30 hours (10 courses) in art history. A total of six of the courses for double and single majors must be at the 300 level or above. Of these six courses, two courses must be in each of the following periods: Pre Modern, Early Modern, and Modern. Three of these six courses must also be in American/European, distributed over the three periods; one course in Asian from any period; and one course in the Middle East/Islamic from any period. Of the 12/10 courses for single and double majors, at least two courses must be seminars.

It is strongly recommended that majors in Art History acquire a proficiency in at least one foreign language.

In addition, Art History majors are encouraged to take advantage of the opportunities provided by museum internships, study abroad programs, and travel fellowships.

TRANSFER CREDIT

With approval from the departmental undergraduate adviser, a maximum of four courses may be taken outside of the department and applied to the major as transfer credits or study abroad course credits. No Advanced Placement credits may be used to satisfy major requirements.

See also Transfer Credit in the Information for Undergraduate Students section (page 27–28).

HONORS PROGRAM IN ART HISTORY

Art History majors may apply in the spring semester of their junior year for acceptance into the Honors Program. Interested students, with an excellent academic record, must submit a thesis proposal and recommendation from their thesis adviser to a committee of art historians for review. If accepted, six credit hours

(included in the 36/30 hours for single and double majors) of directed research and writing would be taken the senior year to complete an honors thesis (HART 402/HART 403). Financial assistance is available for honor students to conduct research between their junior and senior years. In addition to a written thesis, honors students must make a presentation to the faculty and students of the department. Once the adviser and readers have evaluated the completed thesis, the art history faculty determine whether to award honors. Students who do not make satisfactory progress in the first term will not be allowed to continue. Students who miss the final thesis deadline (mid-spring semester of the senior year) will receive a grade and credit but no honors.

EXHIBITIONS, LECTURES, AND ARTS PROGRAMS AT RICE

Exhibitions and related activities organized by the Rice University Art Gallery (Kimberly Davenport, director) enrich the teaching program of the Department of Art History as well as the larger university and Houston community. The Department of Visual Arts mounts several art and photography exhibitions each year and sponsors Rice Cinema, a public alternative film program. Rice cinema is intimately connected with the curriculum both in film and media studies (HART) and in film and photography production (ARTV), and includes frequent guest lecturers, panel discussions, and media events.

The department enjoys an ongoing close relationship with local museums and galleries. The department offers opportunities for students to work and study with local museums, galleries, and alternative art spaces by way of internship courses (HART 400, HART 401, HART 500, HART 501), summer internship working opportunities, fellowships, or collaborative events. The collections and special exhibitions of local museums are often the subject of course lectures.

Lectures, symposia, and talks are sponsored through our Scholars' Forum Lecture Series, the Department of Art History Brown Bag Lunch Series, and specially organized events. These events are designed to bring local, national, and international scholars, critics, and artists to campus to speak on a broad range of topics and current interests.

The Department of Art History houses the Visual Resources Center, which currently holds a broad and extensive collection of approximately 300,000 slides and digital images related to the arts for teaching and research, serving both the department and university at large.

See HART and ARTV in the Courses of Instruction section.

ASIAN STUDIES

THE SCHOOL OF HUMANITIES AND THE SCHOOL OF SOCIAL SCIENCES

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Guatami Shah

LECTURERS

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Marshall McArthur

E. Douglas Mitchell

Nam Van Nguyen

Chao-Mei Shen

Rina V. Williams

Meng Yeh

POSTDOCTORAL FELLOW

David Gray

DEGREE OFFERED: BA

Asian Studies is an interdisciplinary major that explores the complex interaction between political, social, religious, and other important spheres of human life in Asia. Emphasis is placed not only on the diversity and achievements of Asian civilizations but also on the ways an understanding of Asia may shed new light on Western cultural traditions. The major is built around courses in the humanities and social science divisions and a team-taught interdisciplinary core course, Introduction to Asian Civilizations. Some residential college courses may qualify for Asian studies credit.

Requirements: The undergraduate Asian Studies major will consist of 30 hours or more of course work. All majors must take the core course, ASIA 211, and 9 additional courses drawn from at least three of the departments offering courses in Asian studies. (See specific guidelines below.)

DEGREE REQUIREMENTS FOR BA IN ASIAN STUDIES

For general university requirements, see Graduation Requirements (pages 14-15). Students majoring in Asian studies must complete 30 semester hours or more of major course work, including:

- ASIA 211 *Introduction to Asian Civilizations*
- 9 additional courses drawn from at least three of the departments or programs that offer courses with predominantly Asian content. In the case of cross-listed courses, any one of the departments or programs appearing in the cross-listing can be used to satisfy this particular requirement. See courses listed below.
- 6 courses at the 300 level or above

- 2 years of a single Asian language (this may include an Asian language other than those offered by Rice), though students may count no more than four semesters of Asian languages toward the major. Students who have placed into the third year (300-level) or higher of an Asian language at Rice will have satisfied our proficiency requirement for the Asian Studies major. Such students may continue with the same Asian language or another and receive up to four semesters of credit toward the major for this additional language coursework.

Any changes in the requirements for the major must be approved by the director of Asian Studies.

One or more independent reading courses (ASIA 401 for the fall and ASIA 402 for the spring, or ASIA 403) taught by Asian Studies faculty in these departments may be counted toward the major. Students may also use certain residential college courses to fulfill their major requirements, subject to the approval of the director of Asian Studies.

The following courses, not all of which are taught every year, may be used to satisfy the major requirements. Note that a number of these courses are cross-listed.

Anthropology

- ANTH 220 *Contemporary China* (also offered as HIST 220)
 ANTH 310 *Contemporary China* (enriched version of ANTH 220; also offered as HIST 310)
 ANTH 353 *Cultures of India*

Art and Art History

- HART 170 *The Arts of China*
 HART 371 *The Brush and the Stroke in Traditional Chinese Painting* (also offered as ASIA 371)
 HART 470 *Visual Culture in Revolutionary and Post-revolutionary China (ca. 1949-present)* (also offered as ASIA 470)
 HART 472 *Japanese Animation* (also offered as ASIA 472 and HIST 472)

Asian Studies

- ASIA 139 *Introduction to Indian Religions* (also offered as RELI 139)
 ASIA 140 *Introduction to Chinese Religions* (also offered as RELI 140)
 ASIA 179 *The Arts of China*
 ASIA 211 *Introduction to Asian Civilizations* (Also listed as HIST 206)
 ASIA 221 *The Life of the Prophet Muhammad* (also offered as RELI 221)
 ASIA 231 *The Enlightenment of the Body* (also offered as RELI 231)
 ASIA 240 *Gender and Politicized Religion* (also offered as WGST 240)

ASIA 250 *Meditation, Mysticism, and Magic* (also offered as RELI 250)

ASIA 280 *The Asian American Experience*

ASIA 299 *Women in Chinese Literature* (also offered as CHIN 299 and WGST 299)

ASIA 323 *The Knowing Body* (also offered as WGST 323 and RELI 323)

ASIA 330 *Introduction to Traditional Chinese Poetry* (also offered as CHIN 330)

ASIA 332 *Chinese Films and Modern Chinese Literature* (also offered as CHIN 332)

ASIA 333 *Taiwan Literature and Film* (also offered as CHIN 333)

ASIA 334 *Traditional Chinese Tales* (also offered as CHIN 334)

ASIA 335 *Introduction to Classical Chinese Literature* (also offered as CHIN 335)

ASIA 340 *Gender and Politicized Religion* (also offered as WGST 340)

ASIA 344 *Korean Literature* (also offered as HUMA 344 and KORE 344)

ASIA 345 *Origin and Development of Korean and Related Languages in East Asia* (also offered as HUMA 345 and KORE 345)

ASIA 346 *Korean Culture and History* (also offered as KORE 346)

ASIA 354 *Asian Apocalyptic Movements* (also offered as RELI 354)

ASIA 355 *Religion and Social Change in South Asia* (also offered as RELI 355)

- ASIA 360 *China and the Chinese Diaspora*
 ASIA 361 *The Oriental Renaissance*
 (also offered as RELI 361)
 ASIA 363 *Marriage of Heaven and Hell*
 (also offered as RELI 363)
 ASIA 365 *Mysticism and Meditation in China*
 (also offered as RELI 365)
 ASIA 369 *Film, Literature, and the Japanese Past* (also offered as HIST 369)
 ASIA 372 *Survey of Asian American Literature*
 (also offered as ENGL 372)
 ASIA 380 *The Asian American Experience*
 ASIA 399 *Women in Chinese Literature*
 (also offered as WGST 399)
 ASIA 401/402 *Independent Reading*
 ASIA 432 *Islam in South Asia* (also offered as HIST 432 and WGST 432)
 ASIA 441 *Popular Religion in the Middle East*
 (also offered as RELI 441/525)
 ASIA 470 *Visual Culture in Revolutionary and Post-revolutionary China (ca. 1949-present)*
 (also offered as HART 470)
 ASIA 472 *Japanese Animation* (also offered as HART 472, HIST 472)
 ASIA 473 *Topics in Asian American Literature*
 (also offered as ENGL 473)
 ASIA 489 *Migrations and Diasporas*

Chinese

- CHIN 101/102 *Introductory Chinese I and II*
 CHIN 201/202 *Elementary Chinese I and II*
 CHIN 211/212 *Accelerated Elementary Chinese I and II*
 CHIN 203/204 *Accelerated Chinese I and II*
 CHIN 301/302 *Intermediate Chinese I and II*
 CHIN 311/312 *Accelerated Intermediate Chinese I and II*
 CHIN 313 *Advanced Intermediate Chinese: Media Chinese*
 CHIN 321 *Structure of Chinese Syntax and Semantics* (also offered as LING 321)
 CHIN 330 *Introduction to Traditional Chinese Poetry* (also offered as ASIA 330)
 CHIN 332 *Chinese Films and Modern Chinese Literature* (also offered as ASIA 332)
 CHIN 334 *Traditional Chinese Tales* (also offered as ASIA 334)

CHIN 335 *Introduction to Classical Chinese Literature* (also offered as ASIA 334)

CHIN 346 *History of the Chinese Language*
 (also offered as LING 346)

CHIN 399 *Chinese Teaching Practicum*

CHIN 411/412 *Advanced Chinese Language and Culture I and II*

English

ENGL 372 *Survey of Asian American Literature*
 (also offered as ASIA 372)

ENGL 473 *Topics in Asian American Literature*
 (also offered as ASIA 473)

Hindi

HIND 101/102 *Elementary Hindi I and II*

HIND 201/202 *Intermediate Hindi I and II*

HIND 335 *South Asian Literature*

HIND 398/399 *Hindi Teaching Practicum*

History

HIST 206 *Introduction to Asian Civilizations*

HIST 219 *Fortune-Tellers and Philosophers*

HIST 220 *Contemporary China*
 (also offered as ANTH 220)

HIST 221 *Japan in the World Until 1800*

HIST 222 *Japan in the World Since 1800*

HIST 250 *Traditional Chinese Culture*

HIST 270 *South Africa and Indonesia*

HIST 310 *Contemporary China* (enriched version of HIST 220; also offered as ANTH 310)

HIST 319 *Fortune-Tellers and Philosophers*

HIST 321 *Japan in the World Until 1800*

HIST 322 *Japan in the World Since 1800*

HIST 341 *Pre-modern China*

HIST 342 *Modern China*

HIST 352 *The Comparative Modernization of China and Japan*

HIST 369 *Film, Literature and the Japanese Past* (also offered as ASIA 369)

HIST 405 *Issues in Comparative History*

HIST 421 *Japan in the World Until 1800*
 (enriched version of HIST 221)

HIST 422 *Japan in the World Since 1800*
 (enriched version of HIST 222)

HIST 432 *Islam in South Asia*
 (also offered as ASIA 432 and WGST 432)

HIST 448 *Creating Modern Japan: The Meiji Restoration*

HIST 449 *Nation, Empire, and War: Japan in the 1930s*

HIST 450 *Traditional Chinese Culture*
(enriched version of HIST 250)

HIST 472 *Japanese Animation*
(also offered as ASIA 472 and HART 472)

HIST 485 *Comparing Histories: Modernization, War, and Society in Germany and Japan*

Japanese

JAPA 101/102 *Introduction to Japanese I and II*

JAPA 201/202 *Intermediate Japanese I and II*

JAPA 301/302 *Advanced Japanese Reading and Composition I and II*

JAPA 398/399 *Japanese Teaching Practicum*

JAPA 498/499 *Independent Study*

Korean

KORE 101/102 *Introduction to Korean Language and Culture I and II*

KORE 201/202 *Intermediate Korean Language and Culture I and II*

KORE 301/302 *Advanced Korean I and II*

KORE 344 *Korean Literature and Culture*
(also offered as ASIA 344 and HUMA 344)

KORE 345 *Origin and Development of Korean and Related Languages in East Asia*
(also offered as LING 345 and ASIA 345)

KORE 346 *Korean Culture and History* (also offered as ASIA 346)

Linguistics

LING 321 *Structure of Chinese Syntax and Semantics* (also offered as CHIN 321)

LING 345 *Linguistic Structure of Korean* (also offered as KORE 345)

LING 346 *History of the Chinese Language*
(also offered as CHIN 346)

LING 351/352 *Introduction to Sanskrit I and II* (also offered as SANS 301 and 302)

LING 451/452 *Advanced Sanskrit I and II*
(also offered as SANS 401 and 402)

Political Science

POLI 351 *Politics of Southeast Asia*

POLI 460 *Seminar in Comparative Government*

Religious Studies

RELI 132 *Classical and Colloquial Tibetan*
(also offered as TIBT 132)

RELI 139 *Introduction to Indian Religions*
(also offered as ASIA 139)

RELI 140 *Introduction to Chinese Religions*
(also offered as ASIA 140)

RELI 221 *The Life of the Prophet Muhammad*
(also offered as ASIA 221)

RELI 231 *The Enlightenment of the Body*
(also offered as ASIA 231)

RELI 250 *Meditation, Mysticism, and Magic*
(also offered as ASIA 250)

RELI 322 *Introduction to Buddhism*

RELI 323 *The Knowing Body* (also offered as ASIA 323)

RELI 325 *Buddhism and the Female*

RELI 331/332 *Advanced Tibetan Language and Culture I and II* (also offered as TIBT 331/332)

RELI 354 *Asian Apocalyptic Movements*
(also offered as ASIA 354)

RELI 355 *Religion and Social Change in South Asia* (also offered as ASIA 355)

RELI 356 *Major Issues in Contemporary Islam*

RELI 361 *The Oriental Renaissance*
(also offered as ASIA 361)

RELI 363 *The Marriage of Heaven and Hell*
(also offered as ASIA 363)

RELI 365 *Mysticism and Meditation in China*
(also offered as ASIA 365)

RELI 441/525 *Popular Religion in the Middle East* (also offered as ASIA 441)

RELI 470 *Buddhist Wisdom Texts*

RELI 471 *Buddhist Meditation Theory: Women and Men*

RELI 480/580 *Sexuality, Sanctity, and Psychoanalysis* (also offered as WGST 470)

Sanskrit

SANS 301/302 *Elementary Sanskrit I and II*
(also offered as LING 351 and 352)

SANS 401/402 *Advanced Sanskrit I and II*
(also offered as LING 451 and 452)

Sociology

SOCI 323 *The Knowing Body: Buddhism, Gender, and the Social World*
(also offered as ASIA 323 and WGST 323)

Tibetan

TIBT 132/133 *Tibetan Language and Culture I and II* (also offered as RELI 132/133)

TIBT 331/332 *Advanced Tibetan Language and Culture I and II* (also offered as RELI 331/332)

University and Residential College Courses

BAKE 121/JONE 135 *Begining Vietnamese Language and Culture*

JONE 279 *Intermediate Vietnamese Language and Culture*

JONE 311 *Indian Society and Politics*

UNIV 118 *The Classic of Changes (I Ching) in Asian and World Culture*

Vietnamese

JONE 135/BAKE 121 *Begining Vietnamese Language and Culture*

JONE 279 *Intermediate Vietnamese Language and Culture*

Women and Gender Study

WGST 240 *Gender and Politicized Religion*
(also offered as ASIA 240)

WGST 299 *Women in Chinese Literature*
(also offered as ASIA 299 and CHIN 299)

WGST 323 *The Knowing Body: Buddhism, Gender, and the Social World*
(also offered as ASIA 323 and SOCI 323)

WGST 340 *Gender and Politicized Religion*
(also offered as ASIA 240)

WGST 399 *Women in Chinese Literature*
(also offered as ASIA 399 and CHIN 399)

WGST 432 *Islam in South Asia*
(also offered as ASIA 432 and HIST 432)

WGST 470 *Sexuality, Sanctity, and Psychoanalysis* (also offered as RELI 480/580)

See ASIA in the Courses of Instruction section.

BIOENGINEERING

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DEGREES OFFERED: BSB, MS, PHD

Graduate programs in bioengineering offer concentrations in areas that include cellular and molecular engineering; bioinstrumentation, imaging, and optics; biomaterials and biomechanics; and computation bioengineering. Undergraduate programs in bioengineering offer concentrations in areas that include cellular and molecular engineering; bioinstrumentation, imaging, and optics; biomaterials and biomechanics; and computation bioengineering. Research areas include biomechanical engineering, biological systems modeling, bioinformatics, biomaterials, biomedical lasers, cellular and molecular engineering, controlled release technologies, metabolic engineering, spectroscopy, statistical mechanics, systems engineering and instrumentation, thrombosis, tissue engineering, and transport processes.

Undergraduate Program—The bioengineering undergraduate program will prepare students for careers in rapidly developing areas of biomedical engineering and bioprocessing. Our unified and comprehensive program leading to the BS degree in bioengineering will:

- Provide students with a fundamental understanding of mathematics and the natural, life, and medical sciences
- Teach students bioengineering principles and their applications in the life and medical sciences

- Develop their critical problem solving skills in bioengineering.
- Develop their ability to communicate effectively and participate in interdisciplinary teams
- Expose students to a broad education that prepares them for diverse careers

Undergraduates in bioengineering will then have the training to pursue further education in graduate school or medical school and will have strong preparation for a career in the biotechnology industry.

The BSB degree is organized around a core of required courses and a selection of elective courses from three specialization areas. The specialization electives provide a flexibility that can be used to create a focus in cellular and molecular engineering; bioinstrumentation, imaging, and optics; or biomaterials and biomechanics. Because of the number of options, students should consult early with departmental advisers to plan a program that meets their needs.

DEGREE REQUIREMENTS FOR BS IN BIOENGINEERING

For general university requirements, see Graduation Requirements (pages 14–15). The curriculum for a BS degree in bioengineering requires 94 credit hours, which count toward the total of 134 hours required to graduate.

Preparation—As freshmen, students considering a major in bioengineering should take MATH 101 and 102, CHEM 121 and 122, PHYS 101 or PHYS 125, PHYS 102 or PHYS 126, and CAAM 210. Sophomore students should take MATH 211 and 212, CHEM 211, 212, 215, BIOS 201, and MECH 211. BIOE 252 should be taken in the first semester of the sophomore year. BIOE 320 and BIOE 322 should be taken the second semester of the sophomore year.

Specialization Areas—Students in the BSB program will choose courses from one of the four specialization tracks:

- Cellular and molecular engineering
- Bioinstrumentation, imaging, and optics
- Biomaterials and biomechanics
- Computational bioengineering

Students majoring in bioengineering must complete the following courses.

Core Courses

Bioengineering

BIOE 252 *Bioengineering Fundamentals*

BIOE 320 *Systems Physiology Lab Module*

BIOE 322 *Systems Physiology*

BIOE 332 *Thermodynamics*

BIOE 342 *Tissue Culture Laboratory*

BIOE 372 *Introductory
Biomechanics/Biomaterials*

BIOE 383 *Biomedical Instrumentation*

BIOE 391 *Numerical Methods and Statistics*

BIOE 420 *Biosystems Transport and
Reaction Processes*

BIOE 442* *Tissue Engineering
Laboratory Module*

BIOE 443* *Bioprocessing Laboratory Module*

BIOE 444* *Biomechanical Testing
Laboratory Module*

BIOE 445* *Advanced Bioinstrumentation
Laboratory Module*

BIOE 451 *Bioengineering Design I*

BIOE 452 *Bioengineering Design II*

Biosciences

BIOS 201 *Introductory Biology*

BIOS 301 *Biochemistry*

BIOS 311 or 312 *Biosciences
Laboratory Module*

BIOS 341 *Cell Biology*

Computational and Applied Mathematics

CAAM 210 *Introduction to Engineering
Computation*

ChemistryCHEM 121 *General Chemistry*CHEM 122 *General Chemistry*CHEM 211 *Organic Chemistry*CHEM 212 *Organic Chemistry*CHEM 215 *Organic Chemistry Laboratory***Math**MATH 101 *Single Variable Calculus I*MATH 102 *Single Variable Calculus II*MATH 211 *ODEs and Linear Algebra*MATH 212 *Multivariable Calculus***Mechanical Engineering**MECH 211 *Engineering Mechanics***Physics**PHYS 101 or PHYS 111 or PHYS 125 *Mechanics*PHYS 102 or PHYS 112 or PHYS 126 *Electricity and Magnetism*

*Students must take the senior laboratory module in their specialization area: BIOE 443 for Cellular and Molecular Engineering, BIOE 442 or 444 for Biomaterials and Biomechanics, and BIOE 445 for Bioinstrumentation, Imaging and Optics. Students must take one other senior laboratory module for a total of two of the four listed modules (BIOE 442, 443, 444, and 445).

SPECIALIZATION AREAS

Four specialization-area elective courses, at least 2 of which must be at the senior level, will be required in one of the three areas:

- Cellular and molecular engineering
- Bioinstrumentation, imaging, and optics
- Biomaterials and biomechanics

The elective courses in these concentration areas will be announced in future course listings.

Graduate Program—The bioengineering graduate program at Rice educates its students so that they can directly interact with physicians and cell and molecular biologists, while still excelling in the quantitative capabilities so important for engineering applications.

DEGREE REQUIREMENTS FOR ME, MS, AND PHD IN BIOENGINEERING

For general university requirements, see Graduate Degrees (pages 57–61).

ME Program—To obtain a Masters of Engineering from the Bioengineering department you must complete the following course work:

- Curriculum has to be approved by the Academic Affairs Committee (This will be done on a case by case basis)
- Total of 30 credit hours are required (Course must be above and beyond the requirement for the undergraduate degree)
- At least 18 credit hours of the 30 must be taken as BIOE courses including the foundation courses

Foundation courses include:

Biosystems Transport and Reaction Processes (BIOE 520)

Fundamentals of Systems Physiology (BIOE 572)

Introduction to Partial Differential Equations (MATH 381)

- One additional Engineering Course (3 hours).
- Three Additional courses approved by the Academic Affairs Committee (9 hours)

18 hours in BIOE courses

3 hours of additional Engineering

9 hours of additional approved by Academic Affairs Committee

30 Total credit hours

MS Program—Candidates for the MS degree must:

- Complete at least 18 semester hours of foundation, supporting, and advanced courses with high standing
- Fulfill a teaching requirement
- Submit an original research thesis
- Defend the thesis in a public oral examination

PhD Program—Candidates for the PhD degree must:

- Complete at least 36 approved semester hours of foundation, supporting, and advanced courses, with high standing. With departmental approval, the course requirements may be reduced to not less than 22 hours for students already holding an MS degree.
- Fulfill a teaching requirement. After their first semester in residence, students may be asked to spend the equivalent of 6 to 10 hours per week for a total of three semesters on teaching assignments.
- Submit a thesis proposal. PhD students must submit and successfully defend their thesis proposals by the end of their fourth semester in residence.
- Complete a three- to six-month industrial internship. This requirement may be waived for those with adequate previous industrial experience.
- Submit a thesis that provides evidence of their ability to carry out original research in a specialized area of bioengineering.
- Defend the thesis in a public oral examination.

Graduate students take required courses and electives in the following areas:

- Cellular and molecular engineering
- Bioinstrumentation, imaging, and optics
- Biomaterials and biomechanics
- Computational bioengineering

See BIOE in the Courses of Instruction section.

BIOSCIENCES

BIOCHEMISTRY AND CELL BIOLOGY

THE WIESS SCHOOL OF NATURAL SCIENCES

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THE WIESS SCHOOL OF NATURAL SCIENCES

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DEGREES OFFERED: BA, BS, MA, PHD

Undergraduate Programs—The Departments of Biochemistry and Cell Biology and Ecology and Evolutionary Biology offer a broad range of courses in the biosciences: animal behavior, animal biology, biochemistry, biophysics, cell biology, developmental biology, ecology, endocrinology, evolutionary biology, genetics, immunology, microbiology, molecular biology, neurobiology, plant biology, and advanced courses in these and related areas. Students may elect a BA in Biochemistry and Cell Biology, BA in Biological Sciences, BS in Biochemistry and Cell Biology, or BS in Ecology and Evolutionary Biology; and may select courses from the range of topics listed above.

Core courses required of all biosciences majors:**Mathematics**MATH 101/102 *Single Variable Calculus I and II***Chemistry**CHEM 121/122 *General Chemistry with Laboratory*CHEM 211/212 *Organic Chemistry*CHEM 215 *Organic Chemistry Lab***Physics**PHYS 125/126 *General Physics I and II***Biosciences**BIOS 201/202 *Introductory Biology*BIOS 301 *Biochemistry*BIOS 211 *Introductory Lab in Biological Sciences* (2 credit hours)BIOS 213 *Introductory Lab in Ecology and Evolutionary Biology***One Group B BIOS course****2 of the following advanced laboratory courses:**BIOS 311 *Lab in Protein Purification*BIOS 312 *Lab Module in Molecular Biology I*BIOS 313 *Lab Module in Molecular Biology II*BIOS 314 *Lab in Cell and Developmental Biology*BIOS 315 *Lab in Physiology*BIOS 316 *Lab in Ecology*BIOS 317 *Lab in Behavior*BIOS 318 *Lab in Microbiology*BIOS 319 *Tropical Field Biology*BIOS 320 *Lab in Tissue Culture*BIOE 342 *Lab in Tissue Culture*BIOS 530 *NMR Spectroscopy and Molecular Modeling*BIOS 532 *Spectroscopy*BIOS 533 *Computational Biology*BIOS 535 *Practical X-Ray Crystallography*

Math 111 and 112 may be substituted for Math 101; Chem 151, 152 may be substituted for Chem 121, 122; Phys 101 and 102 or Phys 111 and 112 and their labs may be substituted for Phys 125, 126. See listings in the Courses of Instruction for Group A and B designations. No course may be counted more than once toward any of the major requirements.

One of the advanced laboratory course requirements can be satisfied by taking any of the following: (i) Bios 310 if taken for at least two credits; or (ii) Hons 470/471, if the research supervisor is from one of the Biosciences departments, or if the research is biological in nature and pre-approved by the student's advisor; or (iii) Bios 412.

BA IN BIOCHEMISTRY AND CELL BIOLOGY

In addition to the core courses required of all biosciences majors, BA majors within this option must also take:

- MATH 211 or MATH 213
- BIOS 311

- BIOS 341
- Two of the following courses: BIOS 302, BIOS 344, BIOS 352
- Two additional Group A biosciences courses, only one of which may be BIOS 401 or 402

Chem 311 and 312 may be substituted for BIOS 352. Neur 511 and 512 may be substituted for one Group A course. Students may receive credit toward the major for a maximum of 3 credits of BIOS 390.

BA IN BIOLOGICAL SCIENCES

In addition to the core courses that are required of all biosciences majors, BA majors within this option must take:

- MATH 211 or MATH 213 or STAT 305
- One of the following advanced lab courses: BIOS 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 530, 532, 533, 535, or BIOE 342
- One of the following Group A courses: BIOS 302, 341, 344, 352
- One additional Group A course
- Two Group B courses
- One additional Group A or Group B course

Only one of the courses used to satisfy these group A and group B requirements may be BIOS 401, 402, 403, or 404. NEUR 511 and 512 may be substituted for one Group A course. Students may receive credit toward the major for a maximum of 3 credits of BIOS 390 and 3 credits of BIOS 391. Students desiring to specialize in ecology and evolutionary biology can choose a group B course for the group A or B course and their advanced lab can be BIOS 316, 317, or 319.

BS IN BIOCHEMISTRY AND CELL BIOLOGY

In addition to the core courses required of all biosciences majors, BS majors must also take:

- MATH 211 or MATH 213
- BIOS 311
- BIOS 302
- BIOS 341
- BIOS 344
- BIOS 352
- Three additional Group A bioscience courses

BIOS 401 and 402 are recommended Group A courses in the BS degree program. NEUR 511 and 512 may be substituted for one Group A course. Students may receive credit toward the major for a maximum of 3 credits of BIOS 390.

BS IN ECOLOGY AND EVOLUTIONARY BIOLOGY

In addition to the core courses required of all biosciences majors, BS majors must also take:

- MATH 211 or MATH 213 or Stat 305
- One of the following advanced laboratory courses: BIOS 316, 317, 319
- One Group A biosciences course
- BIOS 403 and BIOS 404
- Two additional Group B biosciences courses
- One additional biosciences course from Group A or B

NEUR 511 and 512 may be substituted for one Group A course. Students may receive credit toward the major for a maximum of 3 credits of BIOS 390 and 3 credits of BIOS 391.

Advising—Students should contact the appropriate departmental office to be assigned to an advisor. Those pursuing a BS or BA in Biochemistry and Cell Biology should contact that department office. Those pursuing a BS in Ecology and Evolutionary Biology should contact that department office. Those electing a BA in Biological Sciences may choose the department that most closely corresponds to their interests, and that choice may be changed at any time. Students interested in environmental careers should consult with the Ecology and Evolutionary Biology Department for a list of recommended courses. See also Environmental Studies listings and Environmental Science Double Major.

It is recommended that the 100-level mathematics and chemistry courses be taken in the freshman year; that the 100-level physics courses and the 200-level biosciences courses be taken in either the freshman or sophomore year; and that CHEM 211, 212, 215 be taken in the sophomore year. Those with a limited background in chemistry should complete CHEM 121, 122 before taking BIOS 201, 202. Others are urged to take BIOS 201, 202 as freshmen, to permit earlier access to advanced level BIOS courses. PHYS 125 and 126 are the preferred physics courses for biosciences majors. However, PHYS 101 and 102 or PHYS 111 and 112 and their labs may be taken instead by those wishing to preserve the option of majoring in a subject for which PHYS 101 and 102 are required.

An undergraduate major in biosciences must have 48 semester hours in courses numbered 300 or higher to obtain a BA or BS degree. Students must also complete no fewer than 60 semester hours outside the departmental requirements. These must include the courses needed to satisfy the university distribution requirements.

ACCELERATED RICE BA-BS/PHD PROGRAM IN BIOCHEMISTRY AND CELL BIOLOGY

Qualified undergraduate students at Rice can apply to enroll in the biochemistry and cell biology graduate program in their senior year. The course requirements for graduate studies are therefore completed at the same time as the upper-level undergraduate degree requirements; laboratory research performed as part of the undergraduate thesis project can serve as the initial phases of the PhD thesis work. As a result, the graduate careers of these students will be accelerated by at least one full year, and, in principle, such students should be able to obtain their PhD degrees approximately three years after obtaining their BA or BS degree.

Criteria for selection include academic performance ($\text{GPA} \geq 3.3$), GRE scores, motivation, previous research experience, and personal qualities. Selection is made by the department admissions committee.

MECHANICS OF THE PROGRAM

The program requires the completion of two and one-half years (or their equivalent) of undergraduate studies at Rice before a student can be considered for enrollment in the accelerated PhD program. To continue in the program, the following requirements must be fulfilled: (1) The student must take the GRE before receiving the BA or BS degree and receive scores greater than 80 percent in the Analytical and Quantitative Tests; (2) students must also maintain at least a B average in all courses in their senior year; and (3) the usual graduate requirements will apply for continuation in the program.

DEGREE REQUIREMENTS FOR MA AND PHD IN BIOCHEMISTRY AND CELL BIOLOGY

Admission—Applicants for graduate study in the Department of Biochemistry and Cell Biology must have:

- BA degree in biochemistry, biology, chemistry, chemical engineering, physics, or some equivalent
- Strong ability and motivation, as indicated by academic record, Graduate Record Examination (GRE) scores, and recommendations

Although the department offers an MA degree in biochemistry and cell biology, only on rare occasions are students who do not intend to pursue the PhD degree admitted to the graduate program. The department provides a program guide entitled "Graduate Program for Biochemistry and Cell Biology" which is updated annually. For general university requirements, see Graduate Degrees (in the General Announcements).

Both PhD and MA Programs—Most of the formal course studies will be completed in the first year of residence to allow the students to commence thesis research at the end of their second semester at Rice. During the first year, all graduate students will be advised by the Graduate Advisory Committee (current composition: Stern, Bartel, Braam, Gustin, Olson). This committee will determine the formal course program to be taken during the first year in residence. Students are required to have training in biochemistry, cell biology, genetics, and physical chemistry or biophysics. If students are missing formal training in these subjects, they are required to take the equivalent background courses during their first year. The corresponding courses at Rice include the following:

BIOS 301 *Biochemistry*

BIOS 302 *Biochemistry*

BIOS 311, 312 and 313 *Laboratories for the Biosciences*

BIOS 341 *Cell Biology*

BIOS 344 *Molecular Biology and Genetics*

BIOS 352 *Physical Chemistry for the Biosciences*

All PhD students are required to take the following graduate-level courses:

BIOS 575 *Introduction to Research*

BIOS 581, 582 *Graduate Research Seminars*

BIOS 583 *Molecular Interactions*

BIOS 587 *Research Design, Proposal Writing, and Professional Development*

BIOS 594 *The Ethics of Bioscience and Bioengineering*

BIOS 800 *Graduate Research* (rotations in first year)

Students must also take 2 units from the following set of advanced courses:

BIOS 525 *Plant Molecular Biology* (1 unit)

BIOS 530, 532, 533, 535 *Graduate Laboratory Modules in Molecular Biophysics* (1/2 unit each)

BIOS 545 *Advanced Molecular Biology and Genetics* (1 unit)

BIOS 551 *Molecular Biophysics*

BIOS 588 *Advanced Cell and Developmental Biology* (1 unit)

Students should complete BIOS 583 and BIOS 587 in their first and second years, respectively, and they will be responsible for the content of those course programs in their admission to candidacy examinations (see below). Students also gain teaching experience by serving as discussion leaders and graders in undergraduate sections during their second year. Safety and ethics presentations are provided for first-year students.

Evaluation of Progress in Graduate Study—The Graduate Advisory Committee evaluates each student's undergraduate record and identifies any deficiencies to be corrected (usually in the first year). Thesis advisors may require additional course work of a more specialized nature. Students must complete all additional courses before taking the admission to candidacy examination.

At the end of each semester, the department chair, in consultation with the committee and faculty, reviews student performance in the formal course work; after students complete two semesters at Rice, the faculty conducts a review. Students must maintain at least a B average and demonstrate outstanding motivation and potential for research.

Evaluation after the first year includes:

- Ongoing review of research progress by the thesis research advisor
- A research progress review examination given each year by the student's Research Progress Review Committee
- Presentation of research progress at least once a year after the second year until submission of a complete doctoral thesis
- Completion of an oral admission to candidacy examination before the beginning of the student's sixth semester
- Defense of the PhD thesis research and text in a final public seminar presentation and oral examination attended by the student's Thesis Committee

MA Program—All the above requirements and evaluation procedures apply to MA candidates with the following exceptions. The research progress review examination held during the MA student's second full year, which is identical in format to that for PhD students, replaces the admission to candidacy examination; no other preliminary examination is held before the final oral defense of the master's thesis. MA candidates must complete a thesis and make a public oral defense of their research work to their Thesis Committee and other interested parties.

DEGREE REQUIREMENTS FOR MA AND PHD IN ECOLOGY AND EVOLUTIONARY BIOLOGY

Admission—Applicants for graduate study in the Department of Ecology and Evolutionary Biology must have:

- BA degree or equivalent
- Scores from the Graduate Record Examination (GRE), including the advanced examination in biology
- A strong background in biology
- Completed course work in physics, mathematics (including calculus), and chemistry (including organic chemistry)

These requirements do not preclude admission of qualified applicants who have majored in areas other than biology. Deficiencies should be made up during the first year of residence; some may be waived at the discretion of the student's faculty advisor and the department chair.

Entering students will meet with a faculty advisor to form a course of study for the first year. All first-year students will demonstrate basic proficiency in ecology and evolutionary biology either by completing one ecology course from the following choices: BIOS 322, BIOS 324, BIOS 325, BIOS 329, or BIOS 336 and one evolutionary biology course from the following choices: BIOS 321 or BIOS 334 or by performing satisfactorily on a written examination that tests basic knowledge in both ecology and evolutionary biology.

All graduate students are required to complete the following graduate-level courses: BIOS 561 Topics in Evolution, BIOS 562 Topics in Behavioral Biology, BIOS 563 Topics in Ecology, BIOS 568 Topics in Biological Diversity, BIOS 585/586 Graduate Seminar in Ecology and Evolutionary Biology. Students may substitute BIOS 432 Advanced Evolutionary Biology for BIOS 561 or BIOS 562. Students are required to complete

two semesters of BIOS 591 Graduate Teaching. Students typically complete a PhD in no less than 3 and no more than 5 years.

MS Program—In addition to the general university requirements and those listed above, the Master of Science in Ecology and Evolutionary Biology requires 10 hours of research credit.

MA Program—In addition to the general university requirements and those listed above, the Master of Arts in Ecology and Evolutionary Biology requires the completion and public defense of a thesis embodying the results of an original investigation.

PhD Program—In addition to the general university requirements and those listed above, applicants for the PhD degree in Ecology and Evolutionary Biology must:

- Maintain a grade average of B or better in courses taken in the department and satisfactory grades in courses taken outside the department
- Pass the admission to candidacy examination given by the Graduate Advisory Committee (this examination may be oral and/or written)
- Complete an original investigation and a doctoral thesis worthy of publication in a scientific journal
- Present a departmental seminar on the research
- Publicly defend the doctoral thesis

CENTER FOR THE STUDY OF LANGUAGES

THE SCHOOL OF HUMANITIES

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Aman Attieh (*Arabic*)

Lilly C. Chen (*Chinese*)

Evelyne Datta (*French*)

Raquel Gaytán (*Spanish*)

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Marcela Salas (*Spanish*)

Hiroko Sato (*Japanese*)

Gautami Shah (*Hindi*)

Richard Spuler (*German*)

Jane Verm (*Spanish*)

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Suzana Bloem (*Portuguese*)

Patricia Brogdon-Gómez (*Spanish*)

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Christa Gaug (*German*)

Marshall McArthur (*Chinese*)

Peggy Patterson (*Spanish*)

Jose Narbona (*Spanish*)

La Nelle Riga (*Italian*)

Harry Roddy (*German*)

Chao-mei Shen (*Chinese*)

Victoria Surliuga (*Italian*)

Meng Yeh (*Chinese*)

Elsa Zambosco-Thomas (*Spanish*)

The Center for the Study of Languages (CSL) was founded in 1997 to promote and enhance the study of languages at Rice University and is responsible for teaching 13 languages through the third year of instruction. The role of the center is to establish innovative approaches to language acquisition, expand opportunities for language learning across the curriculum, and increase Rice students' participation in study and work abroad. The Language Resource Center (LRC), the technology division of the CSL, provides resources such as specialized computer software and enhanced videos to support and supplement all aspects of the teaching and learning of languages.

DEGREES OFFERED: NONE

The CSL does not offer degree programs itself, but students are able to pursue language degrees from language departments. Some of those degrees include: BA in Asian Studies (Asian Studies), BA in Classical Studies (Classical Studies), BA, MA, and PhD in French Studies (French Studies), BA in German Studies, BA in Slavic Studies (German and Slavic Studies), and BA, MA in Spanish (Hispanic Studies). See each department for degree requirements.

PLACEMENT TESTING

Foreign language classes are popular among Rice University students who wish to enhance their knowledge of world languages and cultures. Students who have some background in the language they intend to study are required to take a placement test to ensure that they are placed in the appropriate course. Placement Tests can be given online prior to matriculation or during O-Week. Additional information regarding language placement tests can be found on the Language Resource Center web page at www.ruf.rice.edu/~lrc.

TRANSFER CREDITS

The CSL will determine equivalency for foreign language classes taken at other colleges or universities and approve them for transfer credit. University transfer credit guidelines (see page 27) as well as requirements of the degree-granting department still apply. Students who study abroad should have their transfer credits approved before they commit to a study-abroad program. When requesting Rice equivalent credit for foreign language acquisition courses students must submit no less than the following to the CSL for approval: 1) the appropriate transfer request form from the Registrar's Office, 2) a program description for courses taken abroad or catalog description for courses taken in the US, and 3) a syllabus for the course they wish to take or have taken. In addition, students may be required to interview with a faculty member or complete a proficiency test after completion of the course. Students should be aware that the approval process takes about one week and plan accordingly.

SCHOLARSHIPS

Two scholarships are offered yearly through the CSL. The Donne Di Domani donates money to be awarded to outstanding Rice University students. This scholarship, to be used for tuition and books, is awarded to students committed to study of the Italian language and is based on need and merit. The Ministry of Education, Republic of China in Taiwan also offers a scholarship to study Mandarin Chinese in Taiwan for one year. Students interested in applying for either of these scholarships should contact the CSL at the beginning of the spring semester.

See ARAB, CHIN, FREN, GERM, HIND, HEBR, ITAL, JAPA, KORE, PLSH, PORT, RUSS, and SPAN in the Courses of Instruction section.

CHEMICAL ENGINEERING

THE GEORGE R. BROWN SCHOOL OF ENGINEERING

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DEGREES OFFERED: BA, BSChE, MChE, MS, PhD

This major gives undergraduates a sound scientific and technical grounding for further development in a variety of professional environments. Courses in mathematics, chemistry, physics, and computational engineering provide the background for the chemical engineering core, which introduces students to chemical process fundamentals, fluid mechanics, heat and mass transfer, thermodynamics, kinetics, reactor design, process control, and process design. Course electives may be used to create a focus area in one of the following four disciplines: bioengineering, environmental engineering, materials science/engineering, and computational engineering. Upon completing either the flexible BA requirements or the more scientific and professional BSChE requirements, students may apply for a fifth year of study leading to the nonthesis Master of Chemical Engineering (MChE) degree. A joint MBA/MChE degree is also available in conjunction with the Jesse H. Jones Graduate School of Management.

Students admitted for graduate studies leading to the MS or PhD degrees must complete a rigorous program combining advanced course work and original research that must be formalized in an approved thesis. Graduate research is possible in a number of areas, including thermodynamics, interfacial phenomena, complex fluids, polymer science and rheology, process control and optimization, reaction engineering and catalysis, reservoir engineering, biotechnology, and biomedical engineering.

DEGREE REQUIREMENTS FOR BS IN CHEMICAL ENGINEERING

For general university requirements, see Graduation Requirements (pages 14–15). The BS degree is accredited by the Accreditation Board for Engineering and

Technology (ABET). Through careful selection of other engineering and science courses, a student can develop a focus (or concentration) area in any of the following 4 engineering disciplines: environmental science/engineering, bioengineering, materials science/engineering, and computational engineering. These elective programs can be completed within the framework of a BS in chemical engineering. Students majoring in chemical engineering must complete 96 hours in the courses specified below for a minimum of 132 hours at graduation.

The undergraduate curriculum is designed so that outstanding students interested in careers in research and teaching may enter graduate school after earning either bachelor's degree.

DEGREE REQUIREMENTS FOR BA IN CHEMICAL ENGINEERING

Chemistry

CHEM 121/122 *General Chemistry with Laboratory*

or CHEM 151/152 *Honors Chemistry with Laboratory*

CHEM 211/212 *Organic Chemistry*

CHEM 217 *Organic Chemistry Lab*

CHEM 311/312 *Physical Chemistry*

Any 2 of CHEM 212, CHEM 311, or CHEM 312

Chemical Engineering

CENG 301 *Chemical Engineering Fundamentals*

CENG 303 *Computer Programing in Chemical Engineers*

CENG 305 *Computational Methods for Chemical Engineers*

CENG 343 *Chemical Engineering Lab I*

CENG 390 *Kinetics and Reactor Design*

CENG 401/402 *Transport Phenomena I and II*

CENG 403 *Design Fundamentals*

CENG 404 *Product and Process Design*

CENG 411/412 *Thermodynamics I and II*

CENG 443 *Chemical Engineering Lab II*

CENG 470 *Process Dynamics and Control*

Mathematics

MATH 101/102 *Single Variable Calculus I and II*

MATH 211 *Ordinary Differential Equations and Linear Algebra*

MATH 212 *Multivariable Calculus* or equivalent honors courses

CAAM 336 *Differential Equations in Science and Engineering* or MATH 381 *Introduction to Partial Differential Equations*

Physics

PHYS 101 or 111 *Mechanics*

PHYS 102 or 112 *Electricity and Magnetism*

Mechanical Engineering

MECH 211 *Engineering Mechanics*

Engineering Breadth

1 approved basic science course

3 courses from the following:

ELEC 243 *Electrical Circuits*

MSCI 301 *Materials Science*

CEVE 300 *Mechanics of Solids*

CEVE 434 *Chemical Transport and Fate in the Environment*

BIOE 420 *Biosystems Transport and Reaction Processes*

BIOE 460 *Biochemical Engineering*

CEVE 411 *Air Resource Management* or

see requirements for focus areas in environmental science/engineering, bioengineering, materials science/engineering, and computational engineering

With the approval of the departmental undergraduate studies committee, students can also develop a focus (or concentration) area by substituting other engineering or science courses for those listed under Engineering Breadth.

Students pursuing the BA degree in chemical engineering must meet all of the requirements for the BSChE. degree except for the following courses: CENG 404 and CENG 470, the additional "basic science" course, and the 3 "other engineering" courses. Free electives may be substituted for these 6 courses to reach at least 132 semester hours for graduation.

Prerequisites for Chemical Engineering Courses—Before undergraduates may register for courses in chemical engineering at the 300 level and above, they must satisfy the following prerequisites.

For CENG 301

Math 101/102

CHEM 121/122 or CHEM 151/152

Corequisite: CENG 303

For CENG 390

CENG 301, 303, and 305

MATH 211/212

For CENG 401

CENG 411

MATH 211/212

PHYS 101/102

Co/Prerequisite: CENG 305

For CENG 402

CENG 401

Co/Prerequisites: CAAM 336 or MATH 381

For CENG 403

CENG 390, 402, and 412

Co/Prerequisites: CENG 470 and MECH 211

For CENG 404

CENG 403

For CENG 411

CENG 301 and 303

For CENG 412

CENG 411

For CENG 470

CENG 390, 402, and 412

With the written consent of the instructor, students may register for a course without completing the required prerequisite(s). Waivers, however, are not transferable.

DEGREE REQUIREMENTS FOR MChE, MS, AND PHD IN CHEMICAL ENGINEERING

For general university requirements, see Graduate Degrees (pages 57–58).

MChE Program—For the MChE degree, students must complete at least 30 hours of courses beyond those counted for their undergraduate degree. At least 6 of the courses taken must be upper-level courses in chemical engineering and 1 must be an approved mathematics course. The chemical engineering courses selected should include process design (two semesters) and process control, unless courses in these subjects were taken during the student's undergraduate studies.

MS Program—Candidates for the MS degree must:

- Complete at least 18 approved semester hours with high standing
- Submit an original research thesis
- Defend the thesis in a public oral examination

PhD Program—Candidates for the PhD degree must:

- Demonstrate competence in the areas of applied mathematics, thermodynamics, transport processes, and chemical kinetics and reactor design by passing qualifying examinations, usually during the first year of study
- Complete at least 36 approved semester hours with high standing (with department approval, the course requirements may be reduced to 24 hours for students already holding an MS degree)
- Submit a thesis that provides evidence of their ability to carry out original research in a specialized area of chemical engineering
- Defend the thesis in a public oral examination

See CENG in the Courses of Instruction section.

CHEMISTRY

THE WIESS SCHOOL OF NATURAL SCIENCES

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Bruce R. Johnson

FACULTY FELLOW

Valery Khabashesku

Kristen Kulinowski

VISITING PROFESSOR

Raphael Levine

DEGREES OFFERED: BA, BS, MA, PHD

Recognizing the wide range of studies encompassed by chemistry, the department encourages undergraduates to explore offerings in other departments such as mathematics, computational and applied mathematics, biochemistry, and physics as well as upper-level courses in chemistry. An interdepartmental major is offered in chemical physics. Taking advantage of the department's extensive facilities, each BS degree candidate carries out a program of individual research under the supervision of a faculty member.

Graduate studies emphasize individual research, together with a fundamental understanding of chemistry beyond the students' specific interests. Faculty research interests include the synthesis and biosynthesis of organic natural products; the synthesis of small cycloalkanes, molecular recognition, and biological catalysis; bioinorganic and organometallic chemistry; main group element and transition metal chemistry; the chemistry of group 13 elements; high-pressure and high-temperature chemistry; fluorine chemistry; chemical vapor deposition; the design of nanophase solids; molecular photochemistry and photophysics; infrared kinetic spectroscopy, laser and NMR spectroscopy; studies of electron transfer in crossed beams; theoretical and computational chemistry; and the study of fullerene molecules, carbon nanotubes, and their derivatives; polymer synthesis and characterization; molecular electronics; and molecular machines.

DEGREE REQUIREMENTS FOR BA IN CHEMISTRY

For general university requirements, see Graduation Requirements (pages 14-15). Students choosing to receive a BA in chemistry must have a total of at least 120 semester hours at graduation, including the following courses required of all majors.

Core Courses

Chemistry

CHEM 121/122 *General Chemistry* with laboratory or CHEM 151/152 *Honors Chemistry* with laboratory

CHEM 211/212 *Organic Chemistry*

CHEM 215 *Organic Chemistry Lab*

CHEM 311/312 *Physical Chemistry*

CHEM 351 *Introductory Module in Experimental Chemistry I*

CHEM 352 *Introductory Module in Experimental Chemistry II*

CHEM 353 *Introductory Module in Analytical Methods*

CHEM 360 *Inorganic Chemistry*

Mathematics*

MATH 101/102 *Single Variable Calculus I and II* or MATH 121/122

MATH 211 *Ordinary Differential Equations and Linear Algebra*

MATH 212 *Multivariable Calculus* or MATH 221/222 *Honors Calculus III and IV*

Physics

PHYS 101 or 111 *Mechanics*

PHYS 102 or 112 *Electricity and Magnetism*

Other

NSCI 230 *Computation in the Natural Sciences* (or equivalent)

* The Department of Mathematics may, after consultation with a student concerning his/her previous math preparation, recommend that a student be placed into a higher level math course than for which the student has official credit. The Department of Chemistry will accept this waiver of the math classes upon a written confirmation of the waiver from the Department of Mathematics and upon the student's successful completion of the higher level math course.

Advanced Courses

Additional Lecture Courses

At least 1 course from the following:

CHEM 401 *Advanced Organic Chemistry*

CHEM 430 *Quantum Chemistry*

CHEM 495 *Transition Metal Chemistry*

Additional Laboratory Courses

At least 3 advanced laboratory module credit hours from the following list:

CHEM 373 *Advanced Module in Fullerene Chemistry*

CHEM 374 *Advanced Module in Synthetic Chemistry*

CHEM 375 *Advanced Module in Nanochemistry*

CHEM 376 *Advanced Module in Materials Chemistry*

CHEM 377 *Advanced Module in Catalysis*

CHEM 381 *Advanced Module in Physical Chemistry, A*

CHEM 382 *Advanced Module in Physical Chemistry, B*

CHEM 383 *Advanced Module in Instrumental Analysis, A*

CHEM 385 *Advanced Module in Polymer Chemistry*

CHEM 391 *Advanced Module in Catalysis*

CHEM 435 *Methods of Computational Quantum Chemistry*

To ensure that students receive suitable breadth in their laboratory experience, advanced module selections must be approved by the student's major committee.

Other advanced laboratory courses from chemically related disciplines (biochemistry materials science, environmental engineering, etc.) may be substituted for these advanced modules, with approval of the committee. Chemistry majors may also substitute 2 advanced organic laboratory module credit hours for CHEM 215, with approval of the committee. Three hours of CHEM 491 (taken for one entire semester) may be substituted for 1 advanced laboratory module if no other CHEM 491 credit is taken in the same semester.

Students in the chemistry BA major must satisfy the university distribution requirements and complete no fewer than 64 semester hours in addition to the departmental requirements for the chemistry major, giving a minimum total of 120 hours for graduation.

DEGREE REQUIREMENTS FOR BS IN CHEMISTRY

The core chemistry, math, physics, and NSCI 230 requirements for the BS degree are the same as those for the BA degree. PHYS 201 *Waves and Optics* and PHYS 202 *Modern Physics* are recommended but not required.

In addition to the core requirements, the BS degree requires the following course and laboratory work:

- 2 courses total from the **Additional Lecture Courses** list
- 3 advanced modules from the **Additional Laboratory Courses** list. As with the BA degree, 2 advanced laboratory modules may be substituted for CHEM 215 with departmental approval.
- At least 3 semester hours in undergraduate research (CHEM 491) in no less than 2-hour segments. With departmental approval, students may satisfy this requirement with HONS 470/471, which requires participation in CHEM 491 meetings. Students may also satisfy 3 of the 6 required hours in upper-level courses with additional research.
- 6 hours credit in upper-level courses (300 level or higher) in chemistry, mathematics, computational and applied mathematics, physics, biochemistry, or other subjects with adviser approval.

Students in the chemistry BS major must satisfy the distribution requirements (see pages 15-16) and complete no fewer than 60 semester hours in addition to the departmental requirements for the chemistry major, giving a minimum total of 128 hours for graduation.

American Chemical Society Certification—The Rice Department of Chemistry is on the approved list of the Committee on Professional Training of the American Chemical Society and so can certify that graduates have met the appropriate standards. The BA degree is not certifiable. For certification, students must complete:

- All degree requirements for the BS degree listed above
- CHEM 495 *Transition Metal Chemistry* as one of the additional lecture courses
- A department-approved course in biochemistry
- 9 hours total in upper-level courses from chemistry, physics, mathematics, computational and applied mathematics, biochemistry, or other courses in science or engineering with the approval of the department. The required course in biochemistry listed above counts toward this total.

A foreign language, preferably German, is recommended.

Chemical Physics Major—The chemical physics major leading to a BS degree is offered in conjunction with the Department of Physics and Astronomy. Students take upper-level courses in both chemistry and physics, focusing on the applications of physics to chemical systems. Students majoring in chemical physics must complete the following courses:

Core Courses

Chemistry

CHEM 121/122 *General Chemistry with Laboratory* or CHEM 151/152 *Honors Chemistry with Laboratory*

CHEM 211 *Organic Chemistry*

CHEM 311/312 *Physical Chemistry*

Physics

PHYS 101 or 111 *Mechanics*

PHYS 102 or 112 *Electricity and Magnetism*

PHYS 201 *Waves and Optics*

PHYS 202 *Modern Physics*

PHYS 231 *Elementary Physics Lab II*

PHYS 301 *Intermediate Mechanics*

PHYS 302 *Intermediate Electrodynamics*

Mathematics

MATH 101/102 *Single Variable Calculus I and II*

or MATH 121/122

MATH 211 *Ordinary Differential Equations and Linear Algebra*

MATH 212 *Multivariable Calculus* or MATH 221/222 *Honors Calculus III and IV*

Additional Courses

1 course from CHEM 212 or CHEM 360

2 courses from PHYS 311, PHYS 312, CHEM 430, or CHEM 415

6 hours from CHEM 215, CHEM 351, CHEM 352, CHEM 373–391, CHEM 435, PHYS 331, or PHYS 332. Up to 2 hours of independent research (CHEM 491 or PHYS 491/492 may be counted toward this requirement.)

2 courses from NSCI 230, CAAM 211, CAAM 212, or mathematics or computational and applied mathematics at the 300 level or above

ADMISSION REQUIREMENTS FOR ACCELERATED BS/PHD PROGRAM IN CHEMISTRY

The high level of training provided in the Rice BS program enables certain specially qualified undergraduates to enter an accelerated program that allows them to complete a PhD degree within two or three years after receiving their BS degree. Students electing this option must begin their research during the summer following their junior year and continue the research by taking CHEM 491 during their senior year.

****** Students wishing to be considered for the accelerated BS/PhD program should apply to the Department by January 15 of the second semester of their sophomore or junior years at Rice. The student should submit with the application a letter describing why they would like to enroll in this program and outline briefly their intended plan of study, stating their area of interest and with whom they would like to undertake graduate research. After an interview, the Department's graduate admissions committee will consider the application and inform the candidate of their decision by no later than April 15 of that semester. Students admitted to the program will be assigned a committee to work out details of required courses for the accelerated program.

DEGREE REQUIREMENTS FOR MA AND PHD IN CHEMISTRY

For general university requirements, see Graduate Degrees (pages 57–58). Students who have completed course work equivalent to that required for a BA or BS in chemistry may apply for admission to the PhD program. For more information, see Admission to Graduate Study (pages 56–57).

MA Program—Students are NOT normally admitted to study for an MA degree. However, this degree is sometimes awarded to students who do not wish to complete the entire PhD program. Candidates for the MA degree must:

- Complete 6 one-semester courses
- Produce a thesis that presents the results of a program of research approved by the department
- Pass a final oral examination

Students who are admitted to PhD candidacy may apply for an automatic master's degree.

REQUIREMENTS FOR THE PHD IN CHEMISTRY AT RICE UNIVERSITY

The PhD in Chemistry is awarded for original research in Chemistry. Candidates receive a PhD after successfully completing at least 90 semester hours of advanced study in Chemistry and related fields and culminating in a thesis that describes an original and significant investigation in Chemistry. The thesis must be satisfactorily defended in a public oral examination. The student must pass the thesis defense before the end of the 16th semester of residency.

RESEARCH

During the first semester of residence students will select a research advisor from among the members of the faculty; the department chair must approve this choice. In some cases, students may choose research advisors outside of the department; however, such arrangements must be approved by the chemistry faculty. The research advisor will guide the student in the choice of an appropriate research topic and in the detailed training required to complete that project. Students must enroll in CHEM 800 (Graduate Research) and must participate in one of the graduate seminar classes offered by the department (currently CHEM 600, 601 or 602) each semester that the student is in residence.

COURSE WORK

The student must complete 6 three-semester-hour graduate-level lecture courses at Rice University. In order to satisfy this requirement, each of these courses must satisfy the following criteria:

- They must be approved by the department's graduate advising committee.
- If a Chemistry course, it must be at the 400 level or higher. Certain 300 level courses in other departments may be acceptable with prior approval by the department's graduate advising committee. Courses must be in technical subjects in Science or Engineering. Courses in teaching, presentation or management will not be counted towards the 6-class requirement.
- Each course must be passed with a grade of B or higher. It is possible to repeat or replace a course, upon approval of the department's graduate advising committee. A maximum of two courses can be repeated/replaced.

Students transferring from other graduate institutions or students with a master degree can apply to have a maximum of 2 courses waived. A course waiver request must be accompanied by proof that a course pertinent to the student's field of research has been successfully completed at a different institution. Waiver requests must be submitted for approval to the department's graduate advising committee.

TEACHING

Each student is required to participate in CHEM 700 (Teaching Practicum), for four semesters with no grade less than B-.

QUALIFYING EXAMINATION

An examination committee, consisting of three faculty members excluding the research advisor, will be assigned to each student, typically in the second semester. The student must defend an original research proposal before this committee involving both a written and oral presentation of the original research proposal. The written proposal must conform to the format and guidelines established by the

Chemistry Department, which are available in the Department office. The written proposal must be submitted to the committee at least one week before the date of the oral examination. The examination (including any follow up work deemed necessary by the committee) must be passed by the last day of class at the end of the student's fourth semester in residency.

ADVANCEMENT TO CANDIDACY FOR THE PHD

The course and examination requirements listed above must be completed within two years of admittance to the graduate program. After completing these requirements, a student must petition to be advanced to candidacy for the PhD degree. Upon advancement to candidacy a student chooses a thesis committee of at least three faculty members with the guidance and approval of the research advisor and department Chair. The thesis committee must include one faculty member holding primary appointment outside of the Chemistry Department.

SATISFACTORY PERFORMANCE

Students are expected to perform satisfactorily in research as judged by their research director and their thesis committee. Students may also be requested to fulfill certain service functions for the Department. The student must be enrolled full time in a research group each semester that the student is in residence (except the first semester). Every year the student must submit an annual three-page research progress report to the thesis committee by August 1st.

The thesis committee will assess the progress being made in research and may invite the student to present a discussion of their work. If progress is unsatisfactory, the committee may recommend a semester of probation, which may result in dismissal from the program if progress remains unsatisfactory in the subsequent semester. The student, advisor, or committee may request a meeting between student and committee at other times to evaluate progress or to determine a course of action.

In order to remain in good standing, a student must receive grades above B- in CHEM 800, CHEM 700, and the various seminar courses. In the completed lecture courses, a student must maintain an average GPA of 3.00 (B) or higher. Failure to maintain satisfactory progress in research and/or grades will result in probation and possible dismissal.

APPEAL

Students may petition the Chemistry Department Graduate Advising Committee for variances on these academic regulations.

CIVIL AND ENVIRONMENTAL ENGINEERING

THE GEORGE R. BROWN SCHOOL OF ENGINEERING

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DEGREES OFFERED: BA, MCE, MEE, MES, MS, PHD

Civil and environmental engineering (CEVE) is a broad and diverse field of study that offers students an education with several degree options. The most flexible degree options are at the bachelor's level, where students can major in civil engineering (BS or BA) or complete a double major with any other Rice University major. Three nonthesis graduate degrees (MCE, MEE, and MES) are available to students who desire additional education and specialization in civil engineering, environmental engineering, or environmental sciences. Joint MBA/Master of Engineering degrees are also available in conjunction with the Jesse H. Jones Graduate School of Management.

Students admitted for graduate study leading to MS or PhD degrees must complete a rigorous course of study that combines advanced course work with scholarly research culminating in the public defense of a written thesis. Graduate research is carried out in a range of areas reflecting the interests of the department's faculty. Examples include environmental engineering, geotechnical engineering, structural engineering and mechanics, hydrology, water resources and water quality management, air pollution and its control, and hazardous waste treatment.

BS DEGREE IN CIVIL ENGINEERING

The Department of Civil and Environmental Engineering (CEVE) offers an innovative and challenging BS engineering curriculum, which is designed to provide significant flexibility to the student. Specific details and typical course layouts by semester can be found at the departmental website: <http://ceve.rice.edu>.

The main features of the ABET accredited BS in Civil Engineering are as follows:

- Six core courses (21 hours) primarily aimed at introduction to civil and environmental engineering, followed by 8 courses (24 hours) that represent the four thrust areas within CEVE
- The total required CEVE courses are kept to a minimum level of 45 hours to provide maximum flexibility to the student
- The thrust areas include (1) Environmental engineering (air and water quality, transport theory and modeling), (2) Hydrology and water resources (watershed and aquifer management, flood prediction, data analysis, GIS), (3) Structural engineering and mechanics (structural analysis, mechanics, design, matrix methods), (4) Urban infrastructure and management (transportation systems, geotechnical engineering, engineering economics, management)
- A choice of free electives (24 hours) to allow maximum flexibility for students to choose from a approved list of courses
- General science (39 hours) courses involve mathematics, physics, and chemistry

- Distribution (24 hours) courses as per university requirements

Total of at least 132 hours are required for graduation with a BS (see detailed list below).

Additional features of the BS curriculum include

- Freshman/sophomore year courses that introduce fundamentals of CEVE primarily targeted at students with diverse science, engineering, and humanities backgrounds (CEVE 101, 201, 203, 204, 211, and 311, 312)
- Special topics course available in the final year to help attract the best students to perform undergraduate research in the department
- Engineers Without Borders (EWB) is an important component of the program. This exciting new endeavor allows undergraduates to have an experience in a developing country where they are able to actually design and build a project to help society. Students have been attracted to the program in large numbers.

Course Requirements

General Science Requirements (* or an equivalent approved course)

MATH 101 *Single Variable Calculus I* (3)
 MATH 102 *Single Variable Calculus II* (3)
 CHEM 121 *General Chemistry with Lab* (4)
 CHEM 122 *General Chemistry with Lab* (4)
 PHYS 101 *Mechanics with Lab* (3)
 PHYS 102 *Electricity and Magnetism with Lab* (4)
 MATH 211 *Ordinary Differential Equations* (3)
 MATH 212 *Multivariable Calculus* (3)
 CAAM 210 *Intro to Engineering Comp* (3)
 STAT 310* *Probability and Statistics* (3)
 CAAM 335* *Matrix Analysis* (3)
 CHEM 211 or PHY 201 or BIOS 201 (3)

CEVE Core Requirements (21 credits)

CEVE 101 (F) *Fundamentals of CEVE* (3)
 CEVE 203 (F) *Environmental Eng. Processes* (3)
 CEVE 204 (F) *Environmental Eng. Lab* (1)
 CEVE 211 (F) *Engineering Mechanics* (3)
 CEVE 311 (S) *Mechanics of Solids and Structures* (3)
 CEVE 312 (S) *Strength of Materials Lab* (1)
 CEVE 371 (F) *Fluid Mechanics* (3)
 CEVE 480 (S) *Senior Design Project* (4)

Area I Environmental Engineering (select 6 approved hours)

CEVE 401 (F) *Environmental Chemistry* (4)
 CEVE 406 (S) *Environmental Law* (3)
 CEVE 411 (S) *Air Resources Management* (3)
 CEVE 434 (F) *Chemical Transport and Fate* (3)
 Or any approved environmental course in CEVE/CENG

Area II Hydrology and Water Resources (select 6 approved hours)

CEVE 412 (S) *Hydrology and Watersheds Analysis* (3)

CEVE 512 (S) *Hydrologic Design Lab* (3)

CEVE 443 (F) *Atmospheric Science* (3)

ESCI 450 (S) *Remote Sensing* (3)

ESCI 451 (F) *Analysis of Environmental Data* (3)

ESCI 454 (F) *Geographical Info Systems* (3)

Or any approved computational course in CEVE/CAAM/ESCI

Area III Structural Engineering and Mechanics (select 6 approved hours)

CEVE 304 (S) *Structural Analysis* (3)

CEVE 405 (S) *Steel Design* (3)

CEVE 407 (F) *Reinforced Concrete Design* (3)

CEVE 408 (F) *Structures Lab* (1)

CEVE 427 (F) *Matrix Methods in Structural Mechanics* (3)

Or any approved structures/mechanics course in CEVE/MECH

Area IV Urban Infrastructure and Management (select 6 approved hours)

CEVE 201 (F) *Urban and Environmental Systems* (4)

CEVE 322 (F) *Engineering Economics* (3)

CEVE 452 (S) *Urban Transportation Systems* (3)

MGMT 750 (F) *Management for Science and Engineering* (3)

MGMT 751 (S) *Management for Science and Engineering* (3)

CEVE 470 (F) *Infrastructure Geotechnical Engineering* (4)

Or any approved Urban Infrastructure and Management course in CEVE/MGMT/ECON

List of Approved CEVE 500 Level Courses:

CEVE 511, 516, 518, 520, 521, 522, 527, 530, 531, 532, 533, 534, 536, 540, 550, 570, 576, 590

BA DEGREE IN ENVIRONMENTAL ENGINEERING SCIENCES

The BA degree in Environmental Engineering Sciences is designed to provide access to topics of common interest to students across the disciplines at Rice University. It is tailored to the specific needs of each student by discussion with and approval by the CEVE departmental advisor. An advisor will be assigned by the CEVE department chair, normally during the first year of study. Five core courses, plus seven courses in a focused specialty area (see below for example curricula) of study are required; total CEVE requirements approximately 39 hrs. In addition, each student is responsible for satisfying the university distribution requirements (24 hours) and additional electives for a total of at least 120 hours for graduation with a BA in Environmental Engineering Sciences. Although not required, students are encouraged to double major in their focus specialty area.

The coherent and complete core curriculum is designed to give Rice Undergraduate students a consistent technological literacy through the lens of Civil and Environmental Engineering and to prepare students for graduate school in engineering, various sciences (depending upon focus), economics, business MBA, political science, law, or medicine. Select students will be invited to finish an accelerated MS/PhD degree in the CEVE Department at Rice (meet with your advisor or department chair for details). Those students who want to obtain an ABET accredited engineering degree must follow a BS degree program in one of the engineering disciplines, including CEVE.

A student must demonstrate proficiency in the basic concepts of mathematics, computation, chemistry, and physics. Generally, this will require that these subjects were studied previously, e.g., AP exams, or concurrent enrollment with CEVE 101 or 201.

Seven (7) courses from approved electives, including four (4) courses from one specific focus area; four of these seven courses must be 300, or above, and two of these upper-division courses must be from the CEVE curriculum.

Five Core courses required for all BA Environmental Engineering Science majors:

CEVE 101 *Fundamentals of CEVE* (3)

CEVE 201 *Urban and Environmental Systems* (4)*

CEVE 203(204) *Environmental Eng. Processes* 4*

CEVE 401 *Intro Environmental Chemistry* (4)

CEVE 412 *Hydrology and Watershed Analysis* (3)

* Courses with laboratories.

Typical "focus specialty areas" might include:

1. Environmental Engineering: CEVE 406, 411, 434; ESCI 451 + 3 approved electives
2. Chemical Engineering: CENG 301, 390, 401, 402; CEVE 411, 434, 443
3. Chemistry: CHEM 211, 212; CEVE 406, 511 + 3 approved electives
4. Economics: ECON 211, 212, 370, 450, 461; CEVE 406, 411
5. Management: ECON 211, 212, 461; ACCO. 305; POLI 336; CEVE 406, 411

Engineers Without Borders (EWB) is an important component of the CEVE program. This exciting new endeavor allows undergraduates to have an experience in a developing country where they are able to actually design and build a project to help society. Students have been attracted to the program in large numbers

BA DEGREE IN CIVIL ENGINEERING

The BA degree in Civil Engineering is designed to provide access to topics of common interest to students across the disciplines at Rice University. It is tailored to the specific needs of each student by discussion with and approval by the CEVE

departmental advisor. An advisor will be assigned by the CEVE department chair, normally during the first year of study. For the BA degree in Civil Engineering the students must have a total of at least 120 hrs. A student must demonstrate proficiency in the basic concepts of mathematics, computation, chemistry, and physics. Generally, this will require that subjects studied previously, e.g., AP exams. The BA degree in Civil Engineering requires 21 hours of general math and science courses, 25 hours of core civil engineering courses, and 74 hours of electives (distribution courses 24 hrs and remaining open or free electives 50 hrs). Although not required, students are encouraged to double major in their focus specialty area.

The coherent and complete core curriculum is designed to give Rice Undergraduate students a consistent technological literacy through the lens of Civil and Environmental Engineering and to prepare students for graduate school in engineering. Those students who want to obtain an ABET accredited engineering degree must follow a BS degree in Civil Engineering program.

Required general math and science courses

MATH 101 <i>Single Variable Calculus I</i>	3
MATH 102 <i>Single Variable Calculus II</i>	3
MATH 211 <i>Ordinary Differential Equations</i>	3
PHYS 101* <i>Mechanics with Lab</i>	3
PHYS 102* <i>Electricity and Magnetism with Lab</i>	3
One of [COMP 110, CAAM 210, CAAM 335]	3
One of [BIOS 122, CHEM 121/122, ELEC 242, MECH200, MSCI 301]	3
* or equivalent [MATH 212 or 221 recommended]	
Total:	21hrs

Required core civil engineering courses

CEVE 101 <i>Fundamentals of CEVE</i>	3
CEVE 211 <i>Engineering Mechanics</i>	3
CEVE 311 <i>Mechanics of Solids and Structures</i>	3

CEVE 312 <i>Strength of Materials</i>	1*
CEVE 371 <i>Fluid Mechanics</i>	3
* Laboratory	
Total:	13 hrs
Any four civil engineering courses from the following:	
CEVE 202 <i>Environmental Eng. Processes</i>	3
CEVE 304 <i>Structural Analysis</i>	3
CEVE 322 <i>Engineering Economics for Engineers</i>	3
CEVE 405 <i>Steel Design</i>	3
CEVE 407 <i>Reinforced Concrete Design</i>	3
CEVE 412 <i>Hydrology and Watersheds</i>	3
CEVE 427 <i>Matrix Methods in Structural Mechanics</i>	3
CEVE 452 <i>Urban Transportation Systems</i>	3
CEVE 470 <i>Infrastructure Geotechnical Engineering</i>	4
Total:	12 hrs

Engineers Without Borders (EWB) is an important component of the CEVE program. This exciting new endeavor allows undergraduates to have an experience in a developing country where they are able to actually design and build a project to help society. Students have been attracted to the program in large numbers.

DEGREE REQUIREMENTS FOR MCE, MEE, MES, MS, AND PHD

Admission—Applicants pursuing graduate education in environmental engineering or hydrology should have preparation in mathematics, science, and engineering or related courses. A BS degree, or degree in Natural Science is preferred. Applicants pursuing graduate education in structural engineering, structural mechanics, and geotechnical engineering should have a BSCE with a significant emphasis on structural engineering, but students with other undergraduate degrees may apply if they have adequate preparation in mathematics, mechanics, and structural analysis and design. Applicants for graduate degrees should have a BS or BA in related areas of science and engineering. Successful applicants typically have at least a 3.00 (B) grade point average in undergraduate work and high Graduate Record Examination (GRE) scores. For general university requirements, see Graduate Degrees and Admission to Graduate Study (pages 56–58).

MS Program—The Master of Science degree is offered in both civil engineering and environmental engineering. For general university requirements, see Graduate Degrees (pages 57–58). To earn a MS degree, students must:

- Complete at least 24 semester hours of approved courses. For students studying Environmental Engineering this must include one course each in environmental chemistry, water treatment, hydrology, and air quality. For students studying civil, structural engineering, and mechanics this must include one course each in structural engineering, mechanics, advanced mathematics, and dynamic systems (comparable course work completed previously may be substituted for the core courses).
- Select a thesis committee according to department requirements and conduct original research in consultation with the committee.
- Present and defend in oral examination an approved research thesis.

Students take the oral exam only after the committee determines the thesis to be in a written format acceptable for public defense. Normally, students take two academic years and the intervening summer to complete the degree.

Students intending to extend their studies into the PhD degree program should note that the department does not grant an automatic MS degree to candidates who have not written a satisfactory master's thesis.

MCE Program—The Master of Civil Engineering (MCE) is a professional non-thesis degree requiring 30 hours of study. Students with a BS in Civil Engineering are eligible to apply. (see Graduate Degrees pages 57–58). To earn an MCE degree, students must complete 30 semester hours of approved courses.

MBA/MCE Program—For general university requirements, see Graduate Degrees (pages 57–58). See also Management and Accounting (pages 192–202). To earn a MBA/MCE degree, students must:

- Complete 24 semester hours of civil engineering courses
- Complete 52 semester hours of business administration courses

MEE Program—The Master of Environmental Engineering (MEE) is a professional nonthesis degree requiring 30 hours of study. Students who have a BS degree in any field of engineering may apply (see Graduate Degrees pages 57–58).

MES Program—The Master of Environmental Science (MES) is a professional nonthesis degree requiring 30 hours of study. To enter the MES program, applicants must have a BA or BS degree in any of the natural or physical sciences (see Graduate Degrees pages 57–58).

PhD Program—To earn a PhD degree, candidates must successfully accomplish the following (spending at least four semesters in full-time study at Rice):

- Complete 90 semester hours of approved course work past BS (60 semester hours past MS) with high standing.
- Pass a preliminary written examination in civil and environmental engineering.
- Pass a qualifying examination on course work, proposed research, and related topics.
- Complete a dissertation indicating an ability to do original and scholarly research.
- Pass a formal public oral examination on the thesis and related topics.

PhD candidates in civil and environmental engineering take the preliminary exam, administered by department faculty, after two semesters of course work. Candidates who pass this exam then form a doctoral committee according to department requirements. The qualifying examination administered by the doctoral committee after candidates develop a research proposal evaluates their preparation for the proposed research and identifies any areas requiring additional course work or study.

CLASSICAL STUDIES

THE SCHOOL OF HUMANITIES

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Kristine Gilmartin Wallace

DEGREE OFFERED: BA

The classical studies major offers instruction in the Greek and Latin languages, in Greek and Roman literature (studied in the original and in translation), in the classical civilizations surveyed as a whole, and in particular themes, genres, and periods of classical culture and its influence through subsequent ages.

We recognize that students come to the study of ancient Greece and Rome with a whole spectrum of different kinds of interest. Some will want to concentrate on learning the ancient languages and reading the classical texts in the original Greek or Latin. Others will desire a broader introduction to the cultures of Greece and Rome and their legacy. Still others will be looking for some combination of these two approaches. With this in mind, the classical studies major provides maximum flexibility without sacrifice of focus. We cater to students who wish to prepare for graduate school in classical studies and also to students who are interested in Greek and Roman culture for other reasons and who wish to take a less specialized approach. Students will be able to explore ancient Greece and Rome from a variety of different angles and with whatever emphasis best suits their individual needs and goals.

To satisfy the requirements for the classical studies major, students must complete 30 semester hours of courses listed under "Greek," "Latin," and "Classics." Courses listed under "Greek" and "Latin" concentrate on the acquisition of language skills and on the reading and interpretation of texts in the original languages. Courses listed under "Classics" explore, in translation, the literature, history, philosophy, art, and other aspects of Greek and Roman civilization and also the effect that Greece and Rome have had on literature and other traditions in the West. These courses in translation regularly include freshman seminars.

Classical Studies majors will also, if they wish, have the opportunity to engage in research. In the final semester of study, a student majoring in Classical Studies may enroll in CLAS 493, in which the student writes a senior thesis on a topic of the student's choice in close consultation with a particular faculty member.

Further information on the classical studies major is available from faculty members. Faculty also help students arrange travel to Greece or Italy, whether to work on a dig or to study at the Intercollegiate Center for Classical Studies in Rome.

DEGREE REQUIREMENTS FOR BA IN CLASSICAL STUDIES

For general university requirements, see Graduation Requirements (pages 14-15).

The requirements listed here are effective for students declaring a classical studies major in 2002-03 or later. Others should consult the *General Announcements* for 2001-02, or talk to the undergraduate coordinator.

Students majoring in classical studies must complete at least 30 semester hours (10 courses) listed under "Greek," "Latin," or "Classics." The precise combination of Greek, Latin, and Classics courses is to be determined by the student in consultation with the undergraduate coordinator, to ensure an individual course of study that is tailored to the student's own interests and goals.

Some courses offered by the departments of History and Philosophy also satisfy requirements for the classical studies major. For advice on which courses do this, consult any member of the classical studies faculty.

See CLAS, GREE, and LATI in the Courses of Instruction section.

COGNITIVE SCIENCES

THE SCHOOL OF SOCIAL SCIENCES

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Nancy Niedzielski

Geoffrey Potts

Sherrilyn Roush

DEGREE OFFERED: BA

The cognitive sciences provide a multidisciplinary study of the mind. Researchers in this field seek to understand such mental phenomena as perception, thought, memory, the acquisition and use of language, learning, concept formation, and consciousness. Some investigators focus on relations between brain structures and behavior, some work with computer simulation, and others work at more abstract theoretical levels.

DEGREE REQUIREMENTS FOR BA IN COGNITIVE SCIENCES

For general university requirements, see Graduation Requirements (pages 14-15). Students majoring in cognitive sciences must complete 5 core courses and 7 additional courses (see below). Among the 7 additional courses, at least 3 and no more than 4 must be in a single area of concentration—linguistics, philosophy, psychology, or neuroscience.

INTRODUCTORY COURSES

Because the major is interdisciplinary, no single course introduces the full range of the subject. However, students who are interested in majoring in cognitive sciences should take one or more of the following courses during their first and second years: LING200, PHIL103, PSYC101, or PSYC203.

HONORS PROGRAM

Students with a 3.5 GPA in cognitive sciences and 3.3 overall GPA may apply for the cognitive sciences honors program. Students in the honors program are expected to conduct an independent research project of either one or two semesters under the guidance of a member of the cognitive sciences faculty. Students who wish to enter this program should consult with prospective advisors during their junior year and submit a proposal by the end of the semester proceeding the initiation of the project. Typically, this means submitting a proposal by the end of the junior year and beginning the project during the fall of the senior year. Proposal will be

reviewed by both the supervisor and the program director. Students who undertake a two-semester project will be allowed to continue into the second semester only if their advisor judges that sufficient progress has been made during the first semester. At the end of a project, honors students are expected to submit a final paper to both their advisor and the program director and make an oral presentation. For more details, contact the program director.

INDEPENDENT RESEARCH

Majors may undertake supervised independent research by enrolling in CSCI390 or the honors program, and may apply up to 9 credits of independent research towards the major. Students who wish to take CSCI390 must complete a CSCI390 contract and have it approved by their supervisor and the program director prior to the end of the first week of classes. All students taking CSCI390 must also write a substantive research paper, which is to be submitted to both their advisor and the program director at the end of the semester. (Copies of the contract form and instructions are available on the 'forms' section of the cognitive sciences website.)

Core Courses

The core courses are divided into five groups. Majors just take one course from each group.

Computer Science

CAAM 210 *Introduction to Engineering Computation*

COMP 200 *Elements of Computer Science*

COMP 210 *Introduction to Principles of Scientific Computation*

Psychology

PSYC 203 *Introduction to Cognitive Psychology*

Linguistics

LING 200 *Introduction to the Scientific Study of Language*

LING 306 *Language and the Mind*

LING 315 *Semantics*

Philosophy

PHIL 103 *Philosophical Aspects of Cognitive Science*

PHIL 305 *Mathematical Logic*

PHIL 312 *Philosophy of Mind*

Advanced Psychology

PSYC 308 *Memory*

PSYC 309 *Psychology of Language*

PSYC 351 *Psychology of Perception*

PSYC 360 *Thinking*

PSYC 362 *Biopsychology*

PSYC 430 *Computational Modeling of Cognitive Processes*

PSYC 432 *Brain and Behavior*

Additional Courses

At least 3 and no more than 4 must be in one of the following areas of concentration: linguistics, philosophy, psychology, or neuroscience. Note: you may not use the same courses to fulfill both a core course requirement and an additional course requirement; in other words, no double counting.

Cognitive Sciences

CCSCI 390 *Supervised Research in Cognitive Science*

CSCI 481 *Honors Project*

CSCI 482 *Honors Project*

Computer Science

COMP 210 *Introduction to Principles of Scientific Computation*

COMP 212 *Intermediate Programming*

COMP 440 *Artificial Intelligence*

COMP 450 *Algorithmic Robotics*

Linguistics

LING 200 *Introduction to the Scientific Study of Language*

LING 300 *Linguistic Analysis*

LING 301 *Phonetics*

LING 306 *Language and the Mind*

LING 311 *Phonology*

LING 315 *Semantics*

LING 317 *Language and Computers*

LING 402 *Syntax and Computers*

- LING 403 *Modern Linguistic Theory*
 LING 404 *Research Methodologies and Linguistic Theories*
 LING 411 *Neurolinguistics*
 LING 412 *Language and Intelligence*
 LING 467 *Computational Projects*
 LING 490 *Discourse Analysis*

Neuroscience

Many of the neuroscience courses are taught by Baylor College of Medicine faculty.

For more information, see
<http://www.ruf.rice.edu/~neurosci/.BIOS> 421

- BIOS 421 *Neurobiology*
 CAAM 415 *Theoretical Neuroscience*
 ELEC 481 *Fundamentals of Systems Physiology and Biophysics*
 LING 411 *Neurolinguistics*
 PSYC 362 *Biopsychology*
 PSYC 432 *Brain and Behavior (formally cross-listed as CSCI 420)*
 NEUR 500 *Functional Neuroanatomy and Systems Neuroscience*
 NEUR 501 *Cognitive Neuroscience I*
 NEUR 502 *Cognitive Neuroscience II*
 NEUR 503 *Molecular Neuroscience I and II*
 NEUR 504 *Cellular Neurophysiology I and II*
 NEUR 505 *Optical Imaging in Neuroscience*
 NEUR 506 *Learning and Memory*
 NEUR 511 *Integrative Neuroscience Core Course (first semester)*
 NEUR 512 *Integrative Neuroscience Core Course (first semester)*
 NEUR 515 *Neural Development*

Philosophy

- PHIL 103 *Philosophical Aspects of Cognitive Science*
 PHIL 303 *Theory of Knowledge*
 PHIL 305 *Mathematical Logic*
 PHIL 312 *Philosophy of Mind*
 PHIL 353 *Philosophy of Language*
 PHIL 357 *Incompleteness, Undecidability, and Computability*

Psychology

- PSYC 308 *Memory*
 PSYC 309 *Psychology of Language*
 PSYC 340 *Research Methods*
 PSYC 351 *Psychology of Perception*
 PSYC 352 *Formal Foundations of Cognitive Science*
 PSYC 360 *Thinking*
 PSYC 362 *Biopsychology*
 PSYC 370 *Introduction to Human Factors*
 PSYC 409 *Methods in Human-Computer Interaction*
 PSYC 411 *History of Psychology*
 PSYC 430 *Computational Modeling of Cognitive Processes*
 PSYC 432 *Brain and Behavior (formally cross-listed as CSCI 420)*
 PSYC 441 *Human-Computer Interaction*
 PSYC 465 *Olfactory Perception*

Other

- ANTH 406 *Cognitive Studies in Anthropology and Linguistics*
 ELEC 201 *An Introduction to Engineering Design*
 ELEC 498 *Introduction to Robotics*
 STAT 300 *Model Building*

COMPUTATIONAL AND APPLIED MATHEMATICS

THE GEORGE R. BROWN SCHOOL OF ENGINEERING

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Michael Fagan

INSTRUCTOR

Bradford E. Peercy

LECTURER

Timothy A. Redl

DEGREES OFFERED: BA, MCAM, MCSE, MA, PHD

Courses within this major can provide foundations applicable to the many fields of engineering, physical sciences, life sciences, behavioral and social sciences, and computer science. Undergraduate majors have considerable freedom to plan a course of study consistent with their particular interests.

The professional degree (MCAM), for persons interested in practicing within this field, emphasizes general applied mathematics, operations research and optimization, and numerical analysis, while the MA and PhD programs concentrate on research. Faculty research interests fall in the four general areas of numerical analysis and computation, physical mathematics, operations research and optimization, and mathematical modeling in physical, biological, or behavioral sciences.

A further advanced degree program in computational science and engineering (CSE) addresses the current need for sophisticated computation in both engineering and the sciences. Such computation requires an understanding

parallel and vector capabilities and a range of subjects including visualization, networking, and programming environments. An awareness of a variety of new algorithms and analytic techniques is also essential to maximizing the power of the new computational tools.

A joint MBA/Master of Engineering degree is also available in conjunction with the Jesse H. Jones Graduate School of Management.

DEGREE REQUIREMENTS FOR BA IN COMPUTATIONAL AND APPLIED MATHEMATICS

For general university requirements, see Graduation Requirements (pages 14-15). Students majoring in computational and applied mathematics are required to complete the 51 semester hours spelled out in the following program of study.

Introductory Courses: Typically completed during the first two years

MATH 101 <i>Single Variable Calculus I*</i>	CAAM 210 <i>Introduction to Engineering Computation</i>
MATH 102 <i>Single Variable Calculus II</i>	CAAM 335 <i>Matrix Analysis</i>
MATH 212 <i>Multivariable Calculus</i>	
COMP 110 <i>Computation in Science and Engineering*</i>	

*Students with prior experience with calculus and/or computational science may petition the department for a waiver.

Entering students should enroll in the most advanced course commensurate with their background; advice is available from the CAAM department during Orientation Week

Intermediate Courses: Typically completed by the end of the third year

CAAM 336 <i>Differential Equations in Science and Engineering</i>	CAAM 378 <i>Introduction to Operations Research and Optimization</i>
(or STAT 310 <i>Probability and Statistics</i> or STAT 331 <i>Applied Probability</i>)	CAAM 401 <i>Analysis I</i>
	CAAM 402 <i>Analysis II</i>

Advanced Courses: Typically completed during the fourth year

CAAM 453 <i>Numerical Analysis I</i>
CAAM 454 <i>Numerical Analysis II</i>

Electives: 5 Courses at 300 level or above; 2 of which must be at the 400 level or above. (Chosen in consultation with the CAAM undergraduate advisor.)

Highly Recommended Electives:	MATH 423 <i>Partial Differential Equations</i>
CAAM 415 <i>Theoretical Neuroscience</i>	MATH 425 <i>Real Analysis</i>
CAAM 420 <i>Computational Science I</i>	MATH 427 <i>Complex Analysis</i>
CAAM 436 <i>Partial Differential Equations of Mathematical Physics</i>	STAT 431 <i>Overview of Mathematical Statistics</i>
CAAM 460 <i>Optimization Theory</i>	

DEGREE REQUIREMENTS FOR MCAM, MA, AND PHD IN COMPUTATIONAL AND APPLIED MATHEMATICS

Admission—Admission to graduate study in computational and applied mathematics is open to qualified students holding bachelor's or master's degrees (or their equivalent) in engineering, mathematics, or the physical, biological, mathematical, or behavioral sciences. Department faculty evaluate the previous academic record

and credentials of each applicant individually. For general information, see Graduate Degrees (pages 57–58) and Admission to Graduate Study (pages 56–57).

Applicants should be aware that it normally takes two years to obtain a master's degree and an additional two to four years for the doctoral degree.

MCAM Program—This professional degree program emphasizes the applied aspects of mathematics. The MCAM degree requires satisfactory completion of at least 30 semester hours of course work approved by the department.

MA Program—For an MA in computational and applied mathematics, students must:

- Complete at least 30 semester hours at the graduate level, including 5 courses in computational and applied mathematics, in addition to thesis work
- Produce an original thesis acceptable to the department
- Perform satisfactorily on a final public oral examination on the thesis

For students working toward the PhD, successful performance on the master's thesis may fulfill the PhD thesis proposal requirements upon approval by the thesis committee.

PhD Program—For a PhD in computational and applied mathematics, students must:

- Complete a course of study approved by the department, including at least 2 courses outside the major area
- Perform satisfactorily on preliminary and qualifying examinations and reviews
- Produce an original thesis acceptable to the department
- Perform satisfactorily on a final public oral examination on the thesis

Financial Assistance—Graduate fellowships, research assistantships, and graduate scholarships are available and are awarded on the basis of merit to qualified students. Current practice in the department is for most doctoral students in good standing to receive some financial aid.

DEGREE REQUIREMENTS FOR MCSE AND PHD IN COMPUTATIONAL SCIENCE AND ENGINEERING

CSE Program Area—Recognizing the increasing reliance of modern science and engineering on computation as an aid to research, development, and design, the Department of Computational and Applied Mathematics, in conjunction with the Departments of Biochemistry and Cell Biology, Earth Science, Computer Science, Chemical Engineering, Electrical and Computer Engineering, Environmental Science and Engineering, and Statistics, has established an advanced degree program in computational science and engineering (CSE). The program focuses on modern computational techniques and provides a resource for training and expertise in this area.

The program is administered by a faculty committee chosen by the deans of engineering and natural sciences, with ultimate oversight by the provost. The Computational Science Committee (CSC) helps students design an appropriate course of study and sets the examination requirements.

Students may enter the CSE program either directly or indirectly through one of the participating departments (see list above). In all cases, however, students must fulfill the admissions requirements of one department, which is their associated department. Students then meet the normal requirements for graduate study within

that department in every way (including teaching and other duties) except that the curriculum and examination requirements are set by the CSC.

MCSE Program—This program's intent is to produce professional experts in scientific computing able to work as part of an interdisciplinary research team. Training is concentrated in state-of-the-art numerical methods, high-performance computer architectures, use of software development tools for parallel and vector computers, and the application of these techniques to at least one scientific or engineering area. For general university requirements, see Graduate Degrees (pages 57–58).

Required Courses

COMP 412 *Compiler Construction*
(or ELEC 425 *Computer Systems Architecture*)

CAAM 420 *Computational Science I* (taken as soon as possible)

CAAM 520 *Computational Science II* (taken as soon as possible)

1 course from the following

CAAM 452 *Computational Methods for Differential Equations*

CAAM 453 *Numerical Analysis I*

CAAM 454 *Numerical Analysis II*

CAAM 464 *Numerical Optimization*

CAAM 551 *Numerical Linear Algebra*

Computational Science Electives

4 courses selected from an approved list of COMP or CAAM courses (at least 2 courses at the 500 level)

Open Electives

2 approved courses other than CAAM or COMP courses at the 300 level or above (a computational project taken within a participating department also satisfies this requirement)

Application Areas

An appropriate sequence of courses from a participating application area at the 300 level or above

For the MCSE degree, students must complete at least 30 semester hours of course work approved by the CSC; no more than 2 of the courses may be taken at the 300 level, taken outside the CSE program area, or satisfied by transfer credit. Each student's program of study must meet the requirements listed below. Modification of requirements can be requested by petition.

PhD Program—Study at the doctoral level seeks to advance the field through original research. For general university requirements, see Graduate Degrees (pages 57–58). For the PhD in computational science and engineering, students must:

- Complete a course of study approved by the CSC, including at least 2 courses outside the major area
- Perform satisfactorily on preliminary and qualifying examinations and reviews
- Complete 2 courses or a reading examination on an approved foreign language
- Produce an original thesis acceptable to the CSC
- Perform satisfactorily on a final public oral examination on the thesis

See CAAM in the Courses of Instruction section.

COMPUTER SCIENCE

THE GEORGE R. BROWN SCHOOL OF ENGINEERING

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(with Electrical and
Computer Engineering)

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ASSOCIATE PROFESSORS

Joseph Cavallaro

Edward Knightly

Peter Varman

Scott Rixner

Walid Taha

Dan Wallach

ADJUNCT ASSISTANT PROFESSOR

Vikram Adve

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John Mellor-Crummey

RESEARCH SCIENTISTS

Ian Barland

Zoran Budimlic

Robert Fowler

Richard Hanson

Timothy Harvey

Guohua Jin

Charles Koelbel

Linda Torczon

LECTURERS

John Greiner

Dung "Zung" Nguyen

Stephen Wong

POSTDOCTORAL RESEARCH ASSOCIATE

Doron Bustan

Arun Chauhan

Daniel Chavarria-Miranda

Mark Moll

Joël Ouaknine

Kedar Swadi

ASSISTANT PROFESSOR

Vijay Pai

Yehia Massoud

Kartik Mohanram

(with Chemistry)

PROFESSOR

James Tour

DEGREES OFFERED: BA, BSCS, MCS, MS, AND PHD

Computer science is concerned with the study of computers and computing, focusing on algorithms, programs and programming, and computational systems. The main goal of the discipline is to build a systematic body of knowledge, theories, and models that explain the properties of computational systems, and to show how this body of knowledge can be used to produce solutions to real-world computational problems. Computer science is the intellectual discipline underlying information technology, which is widely accepted now as the ascendant technology of the next

century. Students in computer science at Rice benefit from the latest in equipment and ideas as well as the flexibility of the educational programs. The research interests of the faculty include algorithms and complexity, artificial intelligence and robotics, compilers, distributed and parallel computation, graphics and visualization, operating systems, and programming languages.

The department offers two undergraduate degrees: the Bachelor of Arts degree (BA) and the Bachelor of Science in Computer Science degree (BSCS). The department offers two master's degrees: the professional Master of Computer Science degree (MCS) and the research-oriented Master of Science degree (MS). The department also offers a doctoral degree (PhD).

A joint MBA/Master of Engineering degree is also available in conjunction with the Jesse H. Jones Graduate School of Management.

DEGREE REQUIREMENTS FOR BA IN COMPUTER SCIENCE

For general university requirements, see Graduation Requirements (pages 14–15). The undergraduate program in computer science has been designed to accommodate a wide range of student interests. The program is sufficiently flexible for a student to customize it to his or her interests. A student can develop a broad educational program that couples computer science education with a variety of other fields in engineering, natural sciences, the humanities, or social sciences. Alternatively, a program might be designed for a student preparing for graduate study in computer science or for a career in computing and information technology.

The undergraduate program consists of required core courses, which are introductory courses covering material required of all majors; required breadth courses, which are upper-level courses ensuring knowledge in a broad range of areas; and electives, which give students the freedom to explore specific interests. Students majoring in computer science must complete between 58 and 60 semester hours of courses in these three categories. Students graduating with a BA in computer science must have at least 120 semester hours.

Core Courses

8 courses for a total of 28 hours, required for all majors, usually taken in the freshman and sophomore years

MATH 101/102 *Single Variable Calculus I and II*

COMP 210 *Introduction to Principles of Scientific Computation*

COMP 212 *Intermediate Programming*

COMP 280 *Mathematics of Computer Science*

COMP 314 *Applied Algorithms and Data Structures*

COMP 320 *Introduction to Computer Organization*

1 course from the following:

MATH 211 *Ordinary Differential Equations and Linear Algebra*

MATH 221 *Honors Calculus III*

*Preferred choice

Breadth Courses

7 courses for a total of 23 hours, required for all majors, usually taken in the junior and senior years

STAT 331* or 310 *Probability*

CAAM 353 *Numerical Analysis*

MATH 355* or CAAM 335 *Linear Algebra*

COMP 311 or 412 *Programming Languages*

COMP 481 or 482 *Theory*

COMP 421 *Operating Systems*

ELEC 220 *Computer Engineering Fundamentals*

Electives

2 courses for a total of 6 to 8 hours in computer science at the 300 level or higher. One of these may be an independent study project.

DEGREE REQUIREMENTS FOR BS IN COMPUTER SCIENCE

The BS degree is designed for students who are interested in a more in-depth study of computer science to prepare themselves for a professional career in the computing industry. To receive a BS degree, a student must complete all the requirements of the BA degree (i.e., core, breadth, and electives), with the addition of PHYS 101/102 (or PHYS 111/112) (7 hours) to ensure a strong scientific background. In addition, the student must complete the depth component. This component consists of a coherent set of four or five courses specializing in some area of computer science. The same course cannot satisfy both the breadth requirement and the depth requirement. Students can adopt a preset depth component or design their own components, consisting of at least 15 hours. BS degree plans have to be approved by departmental advisers by no later than the end of the junior year. Sample curricula are listed on the departmental website; more information is available from department advisers. The computer science requirements of the BS degree total 80 to 82 semester hours. For a BS degree in computer science, a total of 128 semester hours is required.

DEGREE REQUIREMENTS FOR MCS AND MS IN COMPUTER SCIENCE

For general university requirements, see Graduate Degrees (pages 57-58). The professional MCS degree is a terminal degree for students intending to pursue a technical career in the computer industry. To earn the MCS degree, students must successfully complete 30 semester hours of course work approved by the department and following the plan formulated in consultation with the department adviser.

Areas of concentration for the MCS include algorithms and complexity, artificial intelligence, compiler construction, distributed and parallel computing, graphics and geometric modeling, operating systems, and programming languages. The professional program normally requires three semesters of study.

The MCS degree with a concentration in Bioinformatics is for students intending to pursue a technical career in the biotechnology industry. Students learn to integrate mathematical and computational methods to analyze biological, biochemical, and biophysical data. This program requires prior background in computer science, biosciences, and mathematics. To earn this degree, students must successfully complete 40 hours of approved course work meeting departmental requirements. This program normally requires four semesters of study.

The MS degree is a research degree requiring a thesis in addition to course work.

DEGREE REQUIREMENTS FOR PHD IN COMPUTER SCIENCE

The PhD degree is for students planning to pursue a career in computer science research and education. The doctoral program normally requires four to six years of study. To earn a PhD in computer science, students must:

- Meet departmental course requirements
- Complete a COMP 590 project by the end of the third semester
- Complete a master's thesis by the end of the fifth semester, if a previous master's thesis has not been approved by the graduate committee
- Pass a qualifying examination in an area of specialization within seven semesters after entering the PhD program
- Conduct original research, submit an acceptable PhD thesis proposal, and successfully defend the thesis proposal
- Submit an acceptable PhD thesis that reports research results and pass a final oral defense

Students who successfully meet the first three requirements are awarded the Master of Science degree. Students successfully meeting all requirements, plus any departmental and university requirements, are awarded the PhD degree.

Financial Assistance—Fellowships and research assistantships are available to students in the PhD program. Both provide a monthly stipend for the academic year and cover all tuition expenses. More substantial monthly stipends may be available during the summer for students working on departmental research projects. In all cases, continued support is contingent on satisfactory progress in the program. PhD students also are expected to assist in the teaching and administration of undergraduate and graduate courses.

Additional Information—For further information and application materials, write the Department of Computer Science-MS 132, Rice University, P.O. Box 1892, Houston, Texas 77251-1892.

See COMP in the Courses of Instruction section.

EARTH SCIENCE

THE WIESS SCHOOL OF NATURAL SCIENCES

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Gabor Tari

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Yitian Xiao

ESCI DEGREES OFFERED: BA, BS, MS, PHD

All undergraduate majors in earth science take a 4-course core sequence, typically in the sophomore and junior years, on earth processes, materials, observations, and history. Majors also take introductory courses in mathematics, chemistry, and in many cases, physics and biology.

The selection of upper-division courses and additional science courses depends on which major, BA or BS, and, for the BS major, which of five tracks are chosen by the student: geology, geochemistry, geophysics, environmental earth science, or a track designed by the student subject to the approval of the Department Undergraduate Adviser. The program of study typically includes experience with analytical equipment, computer systems, and fieldwork.

The BS in earth science degree should be chosen by students planning a career or further study in earth science or a related field. The BA in earth science degree has fewer requirements and might be a good choice for students planning a career or further study to which earth science is incidental.

DEGREE REQUIREMENTS FOR BS IN EARTH SCIENCE

For general university requirements, see Graduation Requirements (pages 14–15).

BS majors must also complete the "Additional Requirements" for one track (described below).

The following courses are required for all tracks:

MATH 101/102 *Single Variable Calculus I and II*
CHEM 121/122 or 151/152 *General Chemistry I and II with lab*

PHYS 101/102 or 111/112 *Introductory Physics I and II with lab*

ESCI 321 *Earth System Evolution and Cycles*

ESCI 322 *Earth Chemistry and Materials*

ESCI 323 *Earth Structure and Deformation with lab*

ESCI 324 *Earth's Interior*

ADDITIONAL REQUIREMENTS FOR THE GEOLOGY TRACK

The following courses are required:

MATH 211 *Ordinary Differential Equations and Linear Algebra*

ESCI 334 *Geological and Geophysical Techniques*

ESCI 390 *Field Camp*

Choose one of the following courses:

COMP 110 *Computation in Natural Science*

CAAM 210 *Introduction to Engineering Computation (FORTRAN)*

CAAM 211 *Introduction to Engineering Computation (C)*

COMP 210 *Principles of Computing and Programming*

Choose one of the following courses:

ESCI 412 *Advanced Petrology*

ESCI 430 *Principles of Trace-Element and Isotope Geochemistry*

Choose one of the following courses:

ESCI 427 *Sequence Stratigraphy*

ESCI 521 *Seminar in Applied Micropaleontology*

Choose one of the following courses:

ESCI 504 *Siliciclastic Depositional Systems*

ESCI 506 *Carbonate Depositional Systems*

ESCI 421 *Paleoceanography*

Choose one of the following courses:

ESCI 446 *Solid Earth Geophysics*

ESCI 442 *Exploration Geophysics I*

Choose one of the following courses:

ESCI 463 *Advance Structural Geology*

ESCI 428 *Geologic Interpretation of Reflection Seismic Profiles*

ESCI 464 *Global Tectonics*

ADDITIONAL REQUIREMENTS FOR THE GEOCHEMISTRY TRACK

The following courses are required:

BIOS 201 *Introductory Biology I*

A 6 hour field-based course or equivalent, approved by the department undergraduate adviser

Choose 9 hours from the following:

ESCI 412 *Advanced Petrology*

ESCI 421 *Paleoceanography*

ESCI 458 *Thermodynamics/Kinetics for Geoscientists*

ESCI 203 *Biogeochemistry*

ESCI 430 *Principles of Trace-Element and Isotope Geochemistry*

Choose 9 hours from the following:

All upper division ESCI courses

CEVE 401 *Introduction to Environmental Chemistry*

CEVE 403 *Principles of Environmental Engineering*

CEVE 434 *Chemical Transport and Fate in the Environment*

CEVE 532 *Physical-Chemical Processes in Environmental Engineering*

CEVE 534 *Transport Phenomena and Environmental Modeling*

CEVE 550 *Environmental Organic Chemistry*

BIOS 202 *Introductory Biology*

BIOS 211 *Introductory Lab Module in Biological Science*

CHEM 211/212 *Organic Chemistry*

CHEM 311/312 *Physical Chemistry*

CHEM 415 *Chemical Kinetics and Dynamics*

CHEM 495 *Transition Metal Chemistry*

MATH 211 *Ordinary Differential Equations and Linear Algebra*

MATH 212 *Multivariable Calculus*

COMP 110 *Computation Science and Engineering*

CAAM 210/211 *Introduction to Engineering Computation*

COMP 210 *Introduction to Principles of Scientific Computing*

ADDITIONAL REQUIREMENTS FOR THE GEOPHYSICS TRACK

The following courses are required:

MATH 211 *Ordinary Differential Equations and Linear Algebra*

MATH 212 *Multivariable Calculus*

PHYS 201 *Waves and Optics*

PHYS 231 *Elementary Physics Lab II*

In addition, the student must complete a field experience, equivalent to 6 semester hours, approved by the department undergraduate advisor.

Choose one of the following courses:

COMP 110 *Computation in Natural Science*

CAAM 210 *Introduction to Engineering Computation (FORTRAN)*

CAAM 211 *Introduction to Engineering Computation (C)*

COMP 210 *Principles of Computing and Programming*

Choose 6 hours from the following:

ESCI 440 *Geophysical Data Analysis: Digital Signal Processing*

ESCI 441 *Geophysical Data Analysis: Inverse Theory*

ESCI 442 *Exploration Geophysics I*

ESCI 444 *Exploration Geophysics II*

ESCI 450 *Remote Sensing*

ESCI 454 *Geographic Information Science*

ESCI 461 *Seismology I*

ESCI 462 *Tectonophysics*

ESCI 464 *Global Tectonics*

ESCI 532 *Advanced Global Tectonics*

ESCI 542 *Seismology II*

Choose 6 hours from the immediately preceding or following lists:

Any 3- or 4- hour course in ESCI with a number between 411 and 475, except for research and special studies

Any 300- or 400-level MATH, CAAM, or PHYS class

CHEM 311 *Physical Chemistry*

CEVE 412 *Hydrology & Watershed Analysis*

ADDITIONAL REQUIREMENTS FOR THE ENVIRONMENTAL EARTH SCIENCE TRACK

The following courses are required:

MATH 211 *Ordinary Differential Equations and Linear Algebra*

BIOS 201 *Introductory Biology I*

Choose one of the following courses:

COMP 110 *Computation in Natural Science*

CAAM 210 *Introduction to Engineering Computation (FORTRAN)*

CAAM 211 *Introduction to Engineering Computation (C)*

COMP 210 *Principles of Computing and Programming*

Choose 14 hours from the following, including at least two courses in ESCI:

ESCI 451 *Analysis of Environmental Data*

ESCI 353 *Environmental Geochemistry*

ESCI 442 *Exploration Geophysics*

ESCI 454 *Geographic Information Science*

ESCI 463 *Advanced Structural Geology I*

ESCI 504 *Clastics*

ESCI 506 *Carbonates*

ESCI 568 *Paleoclimates and Human Response*

CEVE 306 *Global Environmental Law and Sustainable Development*

CEVE 434 *Chemical Transport and Fate in the Environment*

CEVE 412 *Hydrogeology and Watershed Analysis*

CEVE 401 *Environmental Chemistry*

CHEM 211 *Organic Chemistry*

CHEM 311 *Physical Chemistry*

CHEM 360 *Inorganic Chemistry*

PHYS 201 *Waves and Optics*

PHYS 231 *Elementary Physics Lab II*

BIOS 202 *Introductory Biology II*

ADDITIONAL REQUIREMENTS FOR THE SELF-DESIGNED TRACK

The department recognizes the interdisciplinary nature of modern earth science and the opportunity for students to specialize in nontraditional and emerging fields. Therefore, students can design their own specialty track, normally in close consultation with one faculty member and followed by approval from the department undergraduate adviser. In addition to required earth science courses and related courses, these tracks will generally comprise 15 additional hours that target a coherent theme from an approved list of 300- or higher-level courses, from inside or outside the department. Interested students are expected to submit a statement of rationale by the beginning of their third year.

Choose 9 hours from the following:

BIOS 201 *Introductory Biology I*
 COMP 110 *Computation in Natural Science*
 CAAM 210 *Introduction to Engineering Computation (FORTRAN)*
 CAAM 211 *Introduction to Engineering Computation (C)*
 COMP 210 *Principles of Computing and Programming*
 CHEM 311/312 *Physical Chemistry I and II*
 MATH 211 *Ordinary Differential Equations and Linear Algebra*

MATH 212 *Multivariable Calculus*

PHYS 201 *Waves and Optics*

PHYS 203 *Atmosphere, Weather, and Climate*

Complete a field experience, equivalent to 4 semester hours, approved by the department undergraduate adviser.

Choose 15 hours of additional courses numbered 300 or higher targeting a coherent theme selected with approval of the department undergraduate adviser.

DEGREE REQUIREMENTS FOR BA IN EARTH SCIENCE

For general university requirements, see Graduation Requirements (pages 14-15).

The following courses are required:

MATH 101/102 *Single Variable Calculus I and II*
 CHEM 121/122 or 151/152 *General Chemistry I and II with lab*
 ESCI 321 *Earth System Evolution and Cycles*
 ESCI 322 *Earth Chemistry and Materials*
 ESCI 323 *Earth Structure and Deformation with lab*
 ESCI 324 *Earth's Interior*
 ESCI 334 *Geological and Geophysical Techniques*

Choose 6 hours from the following:

BIOL 201/202 *Introductory Biology I and II*
 BIOL 211, 213 *Biology Lab Modules*

MATH 211 *Differential Equations*

PHYS 101/102 or 125/126 *Introductory Physics*

COMP 110 *Computation in Natural Science* or CAAM 210 *Introduction to Engineering Computation (FORTRAN)* or CAAM 211 *Introduction to Engineering Computation (C)* or COMP 210 *Principles of Computing and Programming*

Choose four upper division ESCI courses, approved by the department undergraduate advisor.

Choose 6 hours in science and engineering (including ESCI) courses at the 200 level or above approved by the department undergraduate advisor.

UNDERGRADUATE INDEPENDENT RESEARCH

The department encourages, but does not require, earth science undergraduate majors to pursue independent supervised research in ESCI 481 *Research in Earth Science*. See also Honors Programs (page 26).

DEGREE REQUIREMENTS FOR MS AND PHD IN EARTH SCIENCE

All incoming students should have a strong background in physics, chemistry, and mathematics and should have, or should acquire, a broad grounding in fundamental earth science. The department encourages applications from well-qualified students with degrees in the other sciences and mathematics. For general university requirements, see Graduate Degrees (pages 57-58). The requirements for the MS and PhD in earth science are similar, but the PhD demands a significantly higher level of knowledge, research skills, and scholarly independence. Most students need at least two years beyond the bachelor's degree to complete the MS and at least two years beyond the MS degree for the PhD.

Candidates determine, with their major professor and thesis committee, a course of study following the *Guidelines for Advanced Degrees in the Department of Earth Science* distributed to all incoming students. For both degrees, candidates must:

- Complete 20 semester hours of course work at the 400 level and above (or other approved courses), not including research hours
- Pass a written preliminary exam
- Maintain a grade point average of 3.00 (B) or better
- Prepare a written thesis
- Produce a publishable thesis that represents an original contribution to science
- Defend the research and conclusions of the thesis in an oral examination

Students of exceptional ability with a bachelor's degree and department approval may work directly toward the PhD, in which case the course of study is equivalent to that required for both degrees; performance on the examinations and the thesis, however, should be at the level required for the PhD.

Because the graduate programs require full-time study and close interaction with faculty and fellow students, the department discourages students from holding full (or nearly full) time jobs outside the university. Outside employment must be approved by the chair.

See ESCI in the Courses of Instruction section.

ECONOMICS

THE SCHOOL OF SOCIAL SCIENCES

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John Michael Swint

ADJUNCT ASSOCIATE PROFESSOR

Charles E. Begley

DEGREES OFFERED: BA, MA, PHD

Undergraduates may major in either economics or mathematical economic analysis. The latter is recommended for students who intend to continue on to graduate work in economics or pursue a business or governmental job in which analytical and quantitative skills are required.

The eight major fields available for graduate study are econometrics, economic development, economic theory, industrial organization and regulation, international trade and finance, labor, macroeconomics and/or monetary theory, and public finance.

DEGREE REQUIREMENTS FOR BA IN ECONOMICS OR MATHEMATICAL ECONOMIC ANALYSIS

Economics Major—All economics majors must complete a minimum of 10 courses with a grade point average of at least 2.00.

1. These courses include 9 economics courses and 1 course in quantitative analysis as specified in 4 below. Major requirements are not reduced for multiple majors, although some courses can satisfy the requirements for more than one major. (Please note that students may not pursue a double major in economics and mathematical economic analysis.)
2. The following courses are required for all economics majors:
 - ECON 211 *Principles of Economics I*
 - ECON 212 *Principles of Economics II*
 - ECON 370 *Microeconomic Theory*
 - And either ECON 355 *Financial Markets and Institutions*, ECON 375 *Macroeconomic Theory*, or ECON 455 *Money and Financial Markets*.

We suggest that economics majors take ECON 211 and 212 in the freshman year and take ECON 370 in the first semester of their sophomore year, leaving the junior

and senior years for advanced electives. This plan is optional, but please note that failure to take prerequisite courses in earlier years may cause scheduling problems in later years.

3. Given that item 2 has been satisfied, at least 3 of the remaining 5 required economics courses must be selected from the following courses in applied economics.

ECON 355 <i>Financial Markets and Institutions</i>	ECON 451 <i>The Political Economy of Latin America</i>
ECON 375 <i>Macroeconomic Theory</i>	ECON 452 <i>Principles of Islamic Economics</i>
ECON 415 <i>Labor Economics</i>	ECON 455 <i>Money and Financial Markets</i>
ECON 420 <i>International Economics</i>	ECON 461 <i>Urban Economics</i>
ECON 421 <i>International Finance</i>	ECON 472 <i>Introduction to Game Theory</i>
ECON 435 <i>Industrial Organization</i>	ECON 480 <i>Environmental and Energy Economics</i>
ECON 436 <i>Government Regulation of Business</i>	ECON 481 <i>Health Economics</i>
ECON 437 <i>Energy Economics</i>	ECON 482 <i>Distributive Justice—A Microeconomic Approach</i>
ECON 438 <i>Economics of Law</i>	ECON 483 <i>Public Finance—Tax Policy</i>
ECON 439 <i>Torts, Property, and Contracts</i>	ECON 484 <i>Public Expenditure Theory and Social Insurance</i>
ECON 440 <i>Risk, Uncertainty and Information</i>	ECON 485 <i>Contemporary Economic Issues</i>
ECON 445 <i>Managerial Economics</i>	ECON 486 <i>Contemporary Economic Issues</i>
ECON 448 <i>Corporate Finance</i>	ECON 495 <i>Senior Seminar</i>
ECON 449 <i>Basics of Financial Engineering</i>	
ECON 450 <i>World Economic and Social Development</i>	

Please note that if you count ECON 355, 375, or 455 as 1 of the required courses in item 2, you may not also count that course as 1 of the 3 courses satisfying item 3.

4. The quantitative methods course may be selected from the following, or an equivalent or higher-level course approved in advance by the chairman of the undergraduate committee may be taken.

ECON 382 <i>Probability and Statistics</i>	CAAM 336 <i>Differential Equations in Science and Engineering</i>
ECON 400 <i>Econometrics</i>	CAAM 353 <i>Computational Numerical Analysis</i>
ECON 446 <i>Applied Econometrics and Economic Modeling</i>	CAAM 376 <i>Introduction to Management Science</i>
ECON 475 <i>Integer and Combinatorial Optimization</i>	CAAM 378 <i>Introduction to Operations Research</i>
ECON 477 <i>Mathematical Structure of Economic Theory</i>	CAAM 400 <i>Case Studies in Applied Mathematics</i>
ACCO 305 <i>Introduction to Accounting</i>	CAAM 435 <i>Ordinary Differential Equations</i>
CAAM 210 <i>Introduction to Engineering Computation</i>	CAAM 436 <i>Partial Differential Equations I</i>
CAAM 211 <i>Introduction to Engineering Computation</i>	CAAM 437 <i>Partial Differential Equations II</i>
CAAM 321 <i>Introduction to Real Analysis</i>	CAAM 451 <i>Numerical Linear Algebra</i>
CAAM 322 <i>Introduction to Real Analysis II</i>	CAAM 452 <i>Computational Methods for Differential Equations</i>
CAAM 335 <i>Matrix Analysis</i>	CAAM 453 <i>Numerical Analysis and Ordinary Differential Equations</i>

CAAM 454 *Optimization Problems in Computational Engineering and Science*
 CAAM 460 *Optimization Theory*
 CAAM 471 *Linear Programming*
 CAAM 474 *Theory of Linear Inequalities*
 CAAM 475 *Integer and Combinatorial Optimization*
 CAAM 483 *Markov and Martingale Sequences—Renewal Processes*
 COMP 212 *Intermediate Programming*
 COMP 312 *Program Construction*
 COMP 314 *Applied Algorithms and Data Structures*
 COMP 440 *Artificial Intelligence*
 COMP 480 *Concrete Mathematics*

COMP 482 *Design and Analysis of Algorithms*
 STAT 305 *Introduction to Statistics for Biosciences*
 STAT 310 *Probability and Statistics*
 STAT 331 *Applied Probability*
 STAT 381 *Introduction to Applied Probability*
 STAT 400 *Econometrics*
 STAT 410 *Introduction to Statistical Computing and Linear Models*
 STAT 421 *Introduction to Time Series Analysis*
 STAT 431 *Mathematical Statistics*
 STAT 450 *Practicum in Statistical Modeling*
 STAT 486 *Market Models*

5. We strongly recommend that students take two semesters of calculus (MATH 101/102 or MATH 111/112) and a course in probability and statistics (ECON 382/STAT 310). Failure to take these courses will limit the range of electives available to the student.
6. No more than 3 of the 9 economics courses may be transferred from other schools. Additional transfer credits in economics may count toward meeting university graduation requirements but not toward fulfillment of the departmental major requirements. The required course in quantitative analysis may also be transferred. AP credits do not count as transfer credits. In order to transfer either ECON 211 or ECON 212, the student must pass a qualifying examination. Students wishing to take either the ECON 211 or ECON 212 qualifying examination must apply to the economics department office in Baker Hall 266B. For additional information on transfer credits, consult "Procedures for Transfer Credit," available in the economics department office.
7. Students may graduate with "Honors in Economics" by achieving a B+ (3.33) average in all economics courses and doing two semesters of independent research. For details, consult ECON 403/404 *Senior Independent Research*, available in the Economics Department Office.
8. For additional course information, consult "Economics Course Descriptions," compiled by the Rice chapter of the Omicron Delta Epsilon National Economics Honor Society.
9. Please note that it is primarily the responsibility of the student to satisfy all degree requirements, including the general degree requirements (see pages 14–15). Consult with the appropriate departmental adviser, who must sign all registration forms for each major.
10. Students who are considering either graduate work in economics or a business or governmental job in which analytical and quantitative skills are required should seriously consider obtaining the alternative major in mathematical economic analysis.

Mathematical Economic Analysis Major—Students majoring in mathematical economic analysis must take at least 16 courses.

1. The major in mathematical economic analysis is designed for students who are interested in graduate work in economics or a business or governmental job in which analytical and quantitative skills are required.
2. Students must choose between the 2 majors offered by the economics department; that is, students may not double major in economics and mathematical economic analysis. Major requirements are not reduced for students with multiple majors.
3. A minimum of 16 courses in 6 areas is required. These courses must include:

(a) 5 courses in Economic Principles:

ECON 211 *Principles of Economics I*

ECON 212 *Principles of Economics II*

ECON 370 *Microeconomic Theory*

ECON 477 *Mathematical Structure of Economic Theory*

ECON 375 *Macroeconomic Theory*

(b) 3 courses in Applied Economics, selected from the following:

ECON 355 *Financial Markets and Institutions*

ECON 415 *Labor Economics*

ECON 420 *International Economics*

ECON 421 *International Finance*

ECON 430 *Comparative Economic Systems*

ECON 435 *Industrial Organization*

ECON 436 *Government Regulation of Business*

ECON 437 *Energy Economics*

ECON 438 *Economics of Law*

ECON 439 *Torts, Property, and Contracts*

ECON 440 *Financial Theory*

ECON 445 *Managerial Economics*

ECON 446 *Applied Econometrics and Economic Modeling*

ECON 448 *Corporate Finance*

ECON 449 *Basics of Financial Engineering*

ECON 450 *World Economic and Social Development*

ECON 451 *The Political Economy of Latin America*

ECON 452 *Principles of Islamic Economics*

ECON 455 *Money and Financial Markets*

ECON 461 *Urban Economics*

ECON 472 *Introduction to Game Theory*

ECON 480 *Environmental and Energy Economics*

ECON 481 *Health Economics*

ECON 482 *Distributive Justice—A Microeconomic Approach*

ECON 483 *Public Finance—Tax Policy*

ECON 484 *Public Expenditure Theory and Social Insurance*

ECON 485 *Contemporary Economic Issues*

ECON 486 *Contemporary Economic Issues*

(c) 1 additional 400-level course in Applied Economics as listed in (b) or a course in advanced analysis, selected from the following:

ECON 475 *Integer and Combinatorial Optimization*

CAAM 451 *Numerical Linear Algebra*

CAAM 452 *Computational Methods for Differential Equations*

CAAM 453 *Numerical Analysis and Ordinary Differential Equations*

CAAM 454 *Optimization Problems in*

Computational Engineering and Science

CAAM 460 *Optimization Theory*

CAAM 471 *Linear Programming*

CAAM 474 *Theory of Linear Inequalities*

CAAM 475 *Integer and Combinatorial Optimization*

CAAM 483 *Markov and Martingale Sequences—Renewal Processes*

STAT 421 *Introduction to Time Series Analysis*

STAT 450 *Practicum in Statistical Modeling*

STAT 486 *Market Models*

(d) 1 course in Econometrics:ECON 400 *Econometrics***(e) 5 courses in Mathematics and Statistics:**MATH 101 *Single Variable Calculus I*MATH 102 *Single Variable Calculus II*MATH 211 *Ordinary Differential Equations and Linear Algebra* or MATH 355 *Linear Algebra* or CAAM 335 *Matrix Analysis*MATH 212 *Multivariable Calculus* or MATH 221 *Honors Calculus III*ECON 382/STAT 310 *Probability and Statistics* or STAT 410 *Introduction to Statistical Computing and Linear Models* or STAT 431 *Mathematical Statistics***(f) 1 Senior Seminar or Senior Research:**ECON 495 or 496 *Senior Seminar* or ECON403 or 404 *Senior Independent Research*

4. No more than 3 of the required economics courses and 2 of the required Mathematics (or computational and applied mathematics or statistics) courses may be transferred from other schools. Additional transfer credits in economics, mathematics, computational and applied mathematics or statistics may count toward meeting university graduation requirements but not toward fulfillment of the departmental major requirements. AP credits do not count as transfer credits. In order to transfer either 211 or 212, the student must pass a qualifying examination. Students wishing to take either the 211 or 212 qualifying examinations must apply to the economics department office in Baker Hall 266B. For additional information on transfer credits, consult "Procedures for Transfer Credit," available in the economics department office.
5. Students may graduate with "Honors in Mathematical Economic Analysis" by achieving a B+ (3.33) average in the 16 courses required for the major and any other economics electives taken.
6. For additional course information, consult "Economics Course Descriptions," compiled by the Rice chapter of the Omicron Delta Epsilon National Economics Honor Society.
7. Please note that it is primarily the responsibility of the student to satisfy all degree requirements, including the "University Credit Requirements" and "University Distribution Requirements" specified in the *General Announcements*. Consult with the appropriate departmental adviser, who must sign all registration forms for each major.

Substituting Economics Graduate Courses for Undergraduate Courses

Undergraduate majors satisfying the course prerequisites may, subject to the approval of the instructor and of the departmental undergraduate program chair, substitute certain graduate courses for undergraduate courses. Only highly motivated students with excellent aptitudes for economics and a strong background in mathematics should consider making such substitutions. Typically, but not necessarily, such students will be majors in mathematical economic analysis. Permitted substitutions are as follows:

- ECON 501 for ECON 370 (if student has completed ECON 211 at Rice)
- ECON 502 for ECON 375 (if student has completed ECON 212 at Rice)
- ECON 504 for ECON 382

- ECON 510 for ECON 400
- Furthermore, ECON 505 and ECON 508 also may be taken by undergraduates and may be used toward satisfying MTEC requirements. Specifically, ECON 505 could be used as 1 of the courses in the applied economics category or in the advanced analysis category, while ECON 508 could be used only in the advanced analysis category.

Note that this set of substitutable graduate courses includes 6 of the 7 courses required during the first year of the PhD program at Rice. Accordingly, such advanced course work would be excellent preparation for graduate study in economics or in some related field such as finance. Taking such graduate courses should also open more opportunities for the student who will be seeking employment immediately after graduation.

THE FIVE-YEAR MA PROGRAM

Advanced undergraduate students can, subject to the approval of the departmental five-year MA adviser, enter our five-year MA program. In this program, a student who has taken advantage of the full menu of graduate course substitutions available could, with an additional year of study at Rice, earn an MA in economics.

To obtain the MA degree, students must satisfy all of the requirements for PhD candidacy. In particular, students must pass general examinations in microeconomic theory and in macroeconomic theory and econometrics, must pass an examination in a specialized field of study in economics, and must complete an original research project (a dissertation prospectus) that could be developed into a PhD dissertation under the supervision of a faculty member. This work could be an extension of a paper written as a senior independent research project (ECON 403/404). In some cases, at the discretion of the independent research adviser, the paper produced in ECON 403/404 may fulfill this requirement. Finally, the first-year graduate requirement to take ECON 507 Mathematical Economics would be waived with the approval of the departmental five-year MA adviser.

Note that any student who subsequently decides to enter the economics PhD program at Rice would be given graduate credit for all 500 level economics courses completed while an undergraduate. The completion of the PhD dissertation typically requires at least one additional year of research (but no additional courses) beyond the MA degree.

Students who opt for the five-year MA degree program will have different backgrounds and interests on entering Rice and will choose to pursue this option at different stages in their academic careers. The following illustrates two (of many) possible paths to satisfying the MTEC major requirements, while at the same time completing all of the requirements for the MA degree over a five-year period.

COURSES: SAMPLE PATH ONE

The student enters with AP credit for ECON 211/212 and MATH 101/102, and has an early interest in the five-year MA program.

Freshman Year

ECON 370, 375, 477, and MATH 211/212

Sophomore Year

ECON 501; 1 course from Applied Economics category; and MATH 355 or CAAM 310

Junior Year

ECON 502, 504, 505, 510, and 1 course from Applied Economics category

Senior Year

ECON 403/404 and ECON 508

Fifth Year

Complete all remaining graduate courses and pass all remaining examinations required to achieve PhD candidacy.

(Note that with AP credit for MATH 101/102, but not for ECON 211/212, the student could substitute ECON 211/212 for ECON 370 and ECON 375 in the freshman year.)

COURSES: SAMPLE PATH TWO

The student has no relevant AP credit and/or decides to enter the five-year MA program only near the end of the sophomore year.

Freshman Year

ECON 211/212 and MATH 101/102

Sophomore Year

ECON 370, 375, 477, and 1 course from applied economics category; MATH 211/212

Junior Year

ECON 501, 502, 505, 508; MATH 355
or CAAM 310

Senior Year

ECON 504, 510, 403/404, and 1 course from applied economics category

Fifth Year

Complete all remaining graduate courses and pass all remaining examinations required to achieve PhD candidacy.

DEGREE REQUIREMENTS FOR PHD IN ECONOMICS

Preparation for PhD Program. Applicants to the PhD program should have had at least two semesters in calculus and one in linear algebra. Students who have not met these requirements may complete these prerequisites as Class III students (pages 76-77) before being admitted to the graduate program. All applicants are required to take the Graduate Record Exam.

Requirements. For general university requirements, see Graduate Degrees (pages 57-58). Candidates for the PhD degree usually spend from two to two and one-half years in full-time course work and at least one year writing the dissertation; four to five years is a reasonable goal for completing the program. For the PhD, students must:

- Complete an approved program of at least 14 courses not including ECON 593/594 *Workshop in Economics I* and ECON 595/596 *Workshop in Economics II*
- Complete an approved program of at least 4 sections of ECON 593/594 *Workshop in Economics I* and ECON 595/596 *Workshop in Economics II*
- Perform satisfactorily on written general examinations in economic theory and econometrics
- Demonstrate proficiency in a major field by taking the relevant courses in that field and performing satisfactorily on a written examination
- Complete and defend orally a doctoral dissertation setting forth in publishable form the results of original research

See ECON in the Courses of Instruction section.

EDUCATION

THE SCHOOL OF HUMANITIES

PROFESSOR

Linda M. McNeil

No degree is offered through the Education Department. This department offers opportunities for students to explore the background, purposes, and organization of American schools as well as the major issues facing education today. Research seminars allow students to engage in projects in a wide range of topics significant to education. Most courses require observation in the classroom.

Please see the section on Education Certification for information on the three teacher education plans offered at Rice:

1. A secondary teaching certificate in combination with the undergraduate degree in the elected subject field(s)
2. A Master of Arts in Teaching (MAT)
3. A postbaccalaureate plan for Class III students that involves taking those courses and state examinations needed for certification but that does not confer a degree

EDUCATION CERTIFICATION

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Lissa Heckelman

PROFESSOR

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ADJUNCT PROFESSOR

Roland B. Smith, Jr.

LECTURERS

Jean Ashmore

Eileen Coppola

Diana Norcross

Judy Radigan

Carolynne White

ADJUNCT LECTURERS

Wallace Dominey

Elnora Harcombe

Anne Papakonstantinou

DEGREES OFFERED: SECONDARY TEACHING CERTIFICATE IN CONJUNCTION WITH BA IN MAJOR FIELD, MAT

Students in the teacher education program at Rice show a commitment to teaching, a strong record of scholarship in their subject areas, and promise as thoughtful, engaging teachers. The program emphasizes a sound liberal arts education; extensive knowledge of the subject(s) or area(s) to be taught; professional knowledge, including the relevant historical, philosophical, social, and psychological bases of education; and skills in classroom teaching, which include working with both children and adults. Graduates emerge from the program fully prepared for the teaching profession, trained in a multitude of teaching styles and methods to meet the needs of the diverse student population in schools today.

Rice offers three teacher education plans: (1) a secondary teaching certificate in combination with the undergraduate degree in the elected subject field(s), (2) a Master of Arts in Teaching (MAT), and (3) a postbaccalaureate plan for Class III students that involves taking those courses and state examinations needed for certification but that does not confer a degree. All three plans include student teaching in the Rice Summer School for Grades 8-12. While maintaining its academic integrity, the Rice program complies with state of Texas certification requirements. Students seeking additional information about the teacher education program are encouraged to meet with education faculty.

Texas Teaching Credential—Rice is approved by the state of Texas to offer teacher preparation programs in the following fields: art, English, French, German, health science, history, Latin, life sciences, mathematics, physical education, physical science, Russian, science, social studies, and Spanish.

After satisfactory completion of the Rice program, which includes the state-mandated TExES examinations, students are recommended for a Texas teaching credential. The Texas Education Agency then awards a Texas Standard Teaching Certificate (Grades 8-12).

Student Teaching—Apprenticeship (Plan A) and Internship (Plan B) programs are available. Unpaid *apprenticeships* are for undergraduates who wish to complete the teacher education program in four years and two six-week summer sessions. Candidates enroll for the summer sessions following their junior and senior years. Apprentices create and teach courses under the supervision of experienced mentor teachers and university faculty in the Rice Summer School for Grades 8-12.

Paid *internships* are undertaken by Master of Arts in Teaching candidates, by some Class III students, and by undergraduates who begin earning certification in their senior year. Under this plan, students serve one apprenticeship in the Rice Summer School and are then supervised through their first semester of a full-time, paid internship in a neighboring, cooperating school system. Permission for the internship is contingent upon completing a successful apprenticeship.

REQUIREMENTS FOR SECONDARY TEACHING CERTIFICATE

Admission—Students may apply to the Rice University Education Certification Office for admission to the teacher education program if they show:

- Attainment of junior standing at Rice (bachelor's degree for MAT candidates) by the semester of admission to the program
- Grades of C- or better in all semester hours attempted in their teaching field(s), with an overall grade point average of 2.5 or better
- Evidence of adequate physical vigor to perform as a teacher in a classroom
- Exemption or satisfactory scores on all required preprofessional skills tests
- A completed Plan of Study approved by department representatives and the major field adviser is required before admission to the program is complete

Completion of Program—To complete the program, students must:

- Be exempted from or pass the state's Texas Higher Education Assessment (THEA) exam prior to enrolling in any education courses
- Complete the courses specified by the major field adviser(s). Lists of courses for each subject are available in the Education Certification Office
- Complete 18 hours in professional education courses as follows: either:
EDUC 301/501 *Philosophical, Historical, and Social Foundations of Education* or EDUC 330/530 *The American High School*
EDUC 305/505 *Educational Psychology*
EDUC 420 *Curriculum Development*
3 hours in the appropriate seminar(s) in teaching methods
6 hours in student teaching (see following)
- Satisfy a state requirement for computer literacy by completing one course in computer use. EDUC 340 *Computers in Education* is recommended
- Complete all university and program requirements specified for undergraduates, MAT candidates, or nondegree (Class III) candidates
- Make grades of C- or better in all teaching field courses and education courses (B- or better for MAT students)
- Pass appropriate TExES exams

Apprenticeship Plan (Plan A)—(For students beginning certification in junior year and for some Class III students)

Internship Plan (Plan B)—(For students beginning certification in senior year, for some Class III students, and for MAT students)

Junior Year

EDUC 301 *Philosophical, Historical, and Social Foundations of Education*

or EDUC 330 *The American High School*

EDUC 305 *Educational Psychology*

EDUC 410–416 *Relevant seminar(s) in teaching methods*

EDUC 420 *Curriculum Development*

EDUC 440 *Supervised Teaching: Summer School*

Before Graduation

EDUC 301/501 *Philosophical, Historical, and Social Foundations of Education* or EDUC 330/530 *The American High School*
 EDUC 305/505 *Educational Psychology*
 EDUC 410–416 *Relevant seminar(s) in teaching methods*
 EDUC 420 *Curriculum Development*

Senior Year

EDUC 420 *Curriculum Development*

After Academic Year

EDUC 440 *Supervised Teaching: Summer School*
 EDUC 540 *Internship* (paid internship in the fall in a local, accredited secondary school)

After Graduation

EDUC 440 *Supervised Teaching: Summer School*

REQUIREMENTS FOR MAT

Admission—Applicants must have a bachelor's degree, scholarly ability, and an interest in teaching, and they must have taken the Graduate Record Examination (GRE) aptitude test. Education faculty review each application. A limited number of tuition waivers is available. See Admission to Graduate Study (pages 56–57). Admitted students must pass or be exempted from the state's Texas Higher Education Assessment (THEA) exam *prior* to enrolling in any education courses.

Degree Requirements—For general university requirements, see Graduate Degrees (pages 57–58). The MAT is a non-thesis degree program for students who want to qualify for secondary school teaching following a liberal arts education. Most candidates entering the program have had no professional education courses. By completing the program, candidates fulfill all requirements for a Texas Standard Teaching Certificate for grades 8–12. To earn the professional MAT degree, students must complete, with grades of B- or higher, at least 33 semester hours (the need to remove deficiencies may require additional courses for certification). Requirements are as follows:

- Courses in secondary school educational theory, teaching strategies, educational practice, and evaluation
- Graduate or upper-level courses in the relevant teaching field(s) taken at Rice
- Supervised full-time teaching for one summer in the Rice Summer School for Grades 8–12, including design and implementation of courses, teaching, and evaluation
- Approval to begin an internship, based on a successful summer school teaching experience
- Supervised teaching internship for one semester in a cooperating secondary school, including the accompanying seminar

The cooperating school districts pay a regular salary for internship teaching, which covers the small cost of graduate tuition.

REQUIREMENTS FOR CLASS III CERTIFICATION

A nondegree (Class III) plan leading to secondary teacher certification is available for those who have earned a BA but do not choose to pursue a graduate degree. Candidates complete all requirements for secondary teacher certification, including professional education courses and courses in their selected fields. Interested students should direct their queries to the Education Certification Office.

HIGHER EDUCATION ACT TITLE II REPORTS

The Higher Education Act (HEA) of the U.S. Congress requires each institution of higher education with a teacher preparation program enrolling students receiving federal assistance under this Act to report annually "to the State and the general public" certain information. This information consists of the pass rate of program completers on assessments required by the state for teacher licensure or certification, the statewide pass rate on those assessments, and other basic information on the teacher preparation program.

Rice University's Teacher Education program is accredited by the State of Texas. The first year pass rate for program completers on assessments required by the state for 2000-01 was 100% compared with 88% for the overall state pass rate. The combined cumulative pass rate for program completers on assessments required by the state for 1999-2001 was 100% compared to 93% for the overall state pass rate. A total of 26 students were enrolled in the program in 2002-03. The students spent an average of 40 hours per week in supervised student teaching with a student/faculty ratio of 2.8-to-1. Rice teacher education program graduates are regularly recruited by school districts in the Houston and surrounding areas because of their innovative ideas, leadership abilities, and dedication to the teaching profession.

See EDUC and PFDV in the Courses of Instruction section.

ELECTRICAL AND COMPUTER ENGINEERING

THE GEORGE R. BROWN SCHOOL OF ENGINEERING

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Thanh Tran

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Osama Mawlawi

James B. Sinclair

James D. Wise

DEGREES OFFERED: BA, BSEE, MEE, MS, PHD

The electrical and computer engineering department strives to provide high quality degree programs that emphasize fundamental principles, respond to the changing demands and opportunities of technology, challenge the exceptional abilities of Rice students, and prepare these students for roles of leadership in their chosen careers.

In support of this goal, the electrical and computer engineering department's objectives are to provide its undergraduate students with:

- A solid foundation in the fundamentals of electrical and computer engineering, mathematics, and science, enabling them to adapt easily to technological developments that will occur during their careers
- An in-depth exposure to one area of electrical and computer engineering, emphasizing its relationship to the basic framework of the discipline and to other appropriate topics outside that framework
- Courses and projects that actively involve them in their own education and enhance their ability to formulate and solve real-world design and research problems

- A broad education outside of engineering and science that emphasizes the role of electrical and computer engineering in society and builds the leadership skills necessary to deal with the increasing impact of technology

Graduate and undergraduate programs in electrical and computer engineering offer concentrations in areas that include system and control theory, bioengineering, communications, quantum electronics and lasers, computer systems, and electronic materials, devices, and circuits. Bioengineering is primarily a graduate program, although undergraduates may take introductory courses in this field as electives or as part of their specialization area courses.

Undergraduate Program—The department offers two undergraduate degrees, the Bachelor of Arts (BA) and the Bachelor of Science in Electrical Engineering (BSEE). The BA program is highly flexible, permitting a student to tailor the program to his or her interests, be they broad or highly focused. The BSEE degree is approved by the Accreditation Board for Engineering and Technology (ABET); requires more scientific and professional courses, for a total of at least 134 semester hours; and has fewer electives. Outstanding students interested in careers in research and teaching may enter graduate school after either bachelor degree. Both degrees are organized around a core of required courses and a selection of elective courses from five specialization areas. Each student's program must contain a depth sequence in one area and courses from at least two areas to provide breadth. The specialization electives provide a flexibility that can be used to create a focus, such as optical communications, that crosses traditional areas. Because of the number of options, students should consult early with departmental advisers to plan a program that meets their needs.

The BA degree provides a basic foundation in electrical and computer engineering that the student can build upon to construct a custom program. Because of its flexibility and large number of free electives, the BA can be combined easily with another major to create an interdisciplinary program. This may be particularly appropriate for students planning further study in law, business, or medicine.

The BSEE is the usual degree taken by those students planning a career of engineering practice. It is accredited by ABET and can reduce the time required to become a licensed professional engineer. Accreditation and professional licensing are important for some careers, and many states require licensure for those providing engineering services directly to the public, for example, as a consultant. The program for the BSEE degree requires greater depth than the BA degree but still provides considerable flexibility. Students who place out of required courses but who do not have credit must substitute other approved courses *in the same area*.

The requirements for the two degrees are grouped into four categories, listed below. The specific courses required for each degree are listed in the section for that degree.

Basic Mathematics and Science Courses

MATH 101 *Single Variable Calculus I*

MATH 102 *Single Variable Calculus II*

CAAM 335 *Matrix Analysis* or MATH 355
Linear Algebra

MATH 212 *Multivariable Calculus*

PHYS 101 *Mechanics*

PHYS 102 *Electricity and Magnetism*

CHEM 121 *General Chemistry*

Core Courses

ELEC 220 *Fundamentals of Computer Engineering*

ELEC 241 *Fundamentals of Electrical Engineering I*

ELEC 242 *Fundamentals of Electrical Engineering II*

ELEC 261 *Introduction to Waves and Photonics*

ELEC 301 *Introduction to Signals*

ELEC 305 *Introduction to Physical Electronics*

ELEC 326 *Digital Logic Design*

ELEC 391 *Professional Issues in Electrical Engineering*

ELEC 331 *Applied Probability*

Restricted Electives**One from Computation**CAAM 210 *Introduction to Engineering Computation*CAAM 211 *Introduction to Engineering Computation*COMP 210 *Introduction to Principles of Scientific Computation* (COMP 210 is a prerequisite for many other computer courses.)**One from Laboratory**ELEC 201 *Introduction to Engineering Design*ELEC 303 *Systems Laboratory*ELEC 327 *Digital Logic Design Laboratory*ELEC 423 *VLSI Design II*ELEC 433 *Communications Systems Lab*ELEC 465 *Physical Electronics Lab*ELEC 490 *Electrical Engineering Projects*

Specialization Areas—The following groups of courses focus on specific areas within electrical and computer engineering. The systems area involves the study of processing and communicating signals and information through systems of devices, control and robotics, signal and image processing, and communications. The computer engineering area provides a broad background in computer systems engineering, including computer architecture, hardware engineering, software engineering, and computer systems performance analysis. The physical electronics area encompasses studies of electronic materials, semiconductor and optoelectronic devices, lasers, and photonics.

Computer EngineeringCOMP 212 *Intermediate Programming*COMP 311 *Programming Languages*ELEC 322 *Applied Algorithms and Data Structures*ELEC 421 *Operating Systems and Concurrent Programs*COMP 410 *Software Construction Methodology*COMP 413 *Distributed Program Construction*COMP 422 *Parallel Computing*ELEC 422 *VLSI Design*ELEC 424 *Computer Systems Design*ELEC 425 *Computer Systems Architecture*ELEC 426 *Digital Systems Design*ELEC 428 *Computer Systems Performance*ELEC 429 *Introduction to Computer Networks***Bioengineering**ELEC 481 *Computational Neuroscience*ELEC 482 *Physiological Control Systems*ELEC 483 *Introduction to Biomedical Instrumentation and Measurement Techniques***Systems: Control, Communications, and Signal Processing**ELEC 301 *Introduction to Signals*ELEC 302 *Introduction to Systems*ELEC 430 *Communication Theory and Systems*ELEC 431 *Digital Signal Processing*ELEC 436 *Control Systems I***Electronic Circuits and Devices**ELEC 342 *Electronic Circuits*ELEC 427 *Pulse and Digital Circuits*ELEC 435 *Electromechanical Devices and Systems*ELEC 442 *Advanced Electronic Circuits*ELEC 443 *Power Electronic Circuits*ELEC 462 *Semiconductor Devices***Quantum Electronics**PHYS 202 *Quantum Mechanics*ELEC 306 *Electromagnetic Fields and Devices*ELEC 361 *Electronic Materials and Quantum Devices*ELEC 462 *Semiconductor Devices*ELEC 463 *Lasers and Photonics*ELEC 465 *Physical Electronics Practicum*ELEC 561 *Semiconductor Manufacturing*ELEC 563 *Introduction to Solid-State Physics*

The department may add or delete courses from these lists from time to time. At least one of the specialization courses must be an approved design course. In addition, graduate courses and equivalent courses from other departments may be used to

satisfy area requirements with permission; consult with departmental advisers for the latest information. A course can satisfy only one program requirement. ELEC 491/492 may be used to satisfy requirements in any area, depending on the nature of the project.

DEGREE REQUIREMENTS FOR BA IN ELECTRICAL AND COMPUTER ENGINEERING

For general university requirements, see Graduation Requirements (pages 14–15). Students completing the BA program must have a total of at least 120 semester hours at graduation.

Basic Mathematics and Science—Students in the BA program must take all of the courses listed above under basic mathematics and science courses, with the following exceptions: CHEM 121 is not required, and MATH 355 *Linear Algebra*, MATH 381 *Introduction to Partial Differential Equations*, or CAAM 353 *Computational Numerical Analysis* may be taken instead of ELEC 331.

Core Courses—All of the courses listed above under core courses are required for the BA degree, except for COMP 212, ELEC 301, and ELEC 391. Students also have the following options: CAAM 353 *Computational Numerical Analysis* may be taken instead of MATH 212, and CHEM 121 *General Chemistry* may be taken instead of PHYS 201.

Restricted Electives—Students must take 1 computation course and 1 laboratory course listed above.

Specialization Areas—Students must take 2-course sequence in 1 area and courses from at least 2 areas listed above.

DEGREE REQUIREMENTS FOR BS IN ELECTRICAL ENGINEERING

For general university requirements, see Graduation Requirements (pages 14–15). Students completing the BSEE program must have a total of at least 134 semester hours to graduate.

Basic Mathematics and Science—Students must take all of the courses listed above under basic mathematics and science courses. They must also take additional math and science courses, approved by the department, to bring their total to 32 hours.

Core Courses—Students must take all of the courses listed above under core courses.

Restricted Electives—Students must take 1 computation course and 1 laboratory course listed above.

Specialization Areas—Students in the BSEE program choose courses from 2 or more specialization areas listed above. Students must take at least 7 specialization courses, including at least 4 courses in one area and courses from at least 2 different areas. Because of the number of options, students should consult early with department advisers to plan a program that meets their needs. Students going on to a technical career or graduate school may need to use unrestricted electives to create a coherent program.

Design Component—At least 1 of the specialization area courses must be an approved design course.

DEGREE REQUIREMENTS FOR MEE, MS, AND PHD IN ELECTRICAL AND COMPUTER ENGINEERING

For general university requirements, see Graduate Degrees (pages 57–58). Students should also consult department advisers for specific courses of study.

Master's Degree Programs—A candidate for the professional MEE degree must complete an approved sequence of 10 advanced courses, totaling at least 30 hours. At least 4 of these must be technical courses at the 500 level or higher. At least 7 of the courses must be technical courses at the 400 level or higher. All 10 courses must be at the 300 level or higher and 2 credit hours or more. Specialization is possible in the general areas of bioengineering, signal processing, communication and control theory, electro-optics and physical electronics, and computer science and engineering.

The MS degree is not a terminal degree but part of the PhD program. A candidate for the MS degree must complete both an approved course of study and an approved research program, culminating in an acceptable thesis.

A joint MBA/Master of Engineering degree is also available in conjunction with the Jesse H. Jones Graduate School of Management.

PhD Program—Candidates should expect to spend a minimum of three academic years of graduate study in this program. Normally, candidates complete the requirements for an MS degree as part of the PhD program. For the PhD, students must:

- Obtain high standing in an approved course program
- Perform satisfactorily on qualifying examinations
- Complete a satisfactory dissertation of independent and creative research
- Pass a final oral examination

See ELEC in the Courses of Instruction section.

ENGLISH

THE SCHOOL OF HUMANITIES

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Elizabeth A. Dietz

Sarah Ellenzweig

Kirsten Ostherr

WRITER IN RESIDENCE

Amber P. Dermont

Marsha Recknagel

Lecturers

Jill "Thad" Logan

Mary L. Tobin

LECTURERS ON THEATRE

Jason Foreman

Trish Rigdon

VISITING PROFESSORS

Rita Raley

DEGREES OFFERED: BA, MA, PHD

The undergraduate program offers opportunities for students to explore and appreciate it critically, while improving their expository writing skills. The department also offers a variety of courses in creative writing, including poetry, fiction, and creative nonfiction. In addition, it is home to the Theatre Program, which offers courses in theatre and dramatic literature. The graduate program in English offers concentrations in all fields of British and American literature and literary theory.

DEGREE REQUIREMENTS FOR BA IN ENGLISH

For general university requirements, see Graduation Requirements (pages 20-23). Students majoring in English must complete 36 semester hours in English with at least 24 hours in courses at the 300 level or above. A double major requires 30 hours in English with at least 18 hours in the upper-level courses. HUMA 101 and 102 may be counted toward the English major. All English majors must take the following:

- ENGL 200 *Seminar in Literature and Literary Analysis*
- ENGL 300 *Practices in Literary Study*
- 9 hours at the 300 level or above in periods before 1900 A.D.; 6 of the 9 hours must be in periods before 1800 A.D., but only one may be a Shakespearean course

- 3 hours at the 200 level or above in a course that focuses on noncanonical traditions, such as courses in women, African American, Chicano/a, Asian American, ethnic, global, and diasporic writers.

The department recommends that all English majors take courses in British and American history and, if they plan to do graduate work, at least 6 hours of upper-level courses in a foreign language.

DEGREE REQUIREMENTS FOR MA AND PHD IN ENGLISH

For general university requirements, see Graduate Degrees (pages 57–58). As part of their training, graduate students participate in both the teaching and research activities of the department. Upon entering, students will be assigned a Program Advisory Committee (PAC), consisting of two or three faculty members. In consultation with their PAC, students will design their own individualized program structured by the minimal requirements listed below. For more detailed information, please ask for a copy of the Department's *Program Outline*.

MA Program—The English department does not have an MA program, but offers the MA degree to those PhD students who have achieved candidacy and are in the process of completing their doctorate and to qualified PhD students who leave the program before completing their doctorate. To receive an MA students must:

- Satisfactorily complete at least 30 hours of graduate work in English at Rice University. Courses must be those that count towards the PhD in English. These include courses numbered in the 500s and 600s in the English department excluding 510, 601/602, 603/604; up to 2 approved graduate or equivalent courses taken in other departments; and up to 2 approved courses in the English department numbered 400 and above. Students must satisfactorily complete ENGL 600 and distribution requirements for the PhD (see below).
- Satisfactorily complete two teaching assistantships (ENGL 601/602). These do not count toward the 30-hour requirement.

PhD Program—To gain admission to PhD candidacy, students must satisfy the first seven of the following requirements, and they must receive approval for their dissertation prospectus from the Department's Graduate Committee. To earn a PhD in English, candidates must also complete the last 2 requirements. Students must:

1. Satisfactorily complete at least 33 hours of course work plus ENGL 510, exclusive of the thesis. Courses can include: graduate courses in the English department numbered 500 to 600, excluding 510, 601/602, 603/604; up to 2 approved undergraduate courses in the English department; and up to 2 approved courses in another department.
2. Satisfactorily complete the following 2 required courses: ENGL 600 *Professional Methods*, and ENGL 605 *Third-Year Writing Workshop*. These count toward the 33-hour requirement.
3. Satisfactorily complete the distribution requirement, which consists of 2 approved courses on literature before 1800 and 2 after 1800. These count toward the 33-hour requirement.
4. Satisfactorily complete the teaching requirement by serving twice as a teaching assistant, by completing ENGL 510/511 *Pedagogy*, and by teaching a lower-level course designed in conjunction with the instructor of ENGL 510. ENGL 510 does not count toward the 33-hour requirement.
5. Pass a six-hour written preliminary examination focusing on two lists of books: one representing the full range of a literary period as defined by the student and his or her preliminary committee, the other representing a second literary period, a single author, a genre traced over a period of time more

comprehensive than that covered by the first list, or a particular theoretical or critical approach studied with reference to its own history and traditions as well as to the historical field of the first exam.

6. Complete a dissertation prospectus that proposes a topic and an approach, offers a context to the topic in terms of work already done, offers an outline of chapters or sections, and includes a substantial bibliography.
7. Complete a dissertation that demonstrates a capacity for independent and original work of high quality.
8. Pass an oral exam on the dissertation and related fields of study.

Financial Support—Within the limits of available funds, qualified students may receive graduate scholarships or fellowships for up to five years. To qualify for this continuing financial aid, students must be approved for candidacy for the PhD by the beginning of their ninth semester at Rice (fifth semester for those entering with an MA).

See ENGL and THEA in the Courses of Instruction section.

ENVIRONMENTAL ANALYSIS AND DECISION MAKING

THE WIESS SCHOOL OF NATURAL SCIENCES

DIRECTOR

Matthew P. Fraser

PROFESSORS

Andrew R. Barron

Katherine B. Ensor

Neal F. Lane

Erzsébet Merényi

Dale S. Sawyer

Tayfun E. Tezduyar

ASSOCIATE PROFESSORS

Vicki L. Colvin

Matthias Heinkenschloss

ASSISTANT PROFESSORS

Evan H. Siemann

FACULTY FELLOW

Kristen M. Kulinowski

DEGREES OFFERED: MS

Rice University introduced a professional master's degree in environmental analysis and decision making in fall 2002. This degree is geared to teach students rigorous methods that are needed by industrial and governmental organizations to deal with environmental issues. As an interdisciplinary program, it aims to give students the ability to predict environmental problems, not just solve them. It emphasizes core quantitative topics such as statistics, remote sensing, data analysis, and modeling. In addition, it teaches laboratory and computer skills and allows students to focus their education by taking electives in relevant fields.

The environmental analysis and decision making degree is one of three tracks in the new Professional Master's Program at Rice housed in the Wiess School of Natural Sciences. These master's degrees are designed for students seeking to gain further scientific core expertise coupled with enhanced management and communications skills. These degrees instill a level of scholastic proficiency that exceeds that of the bachelor's level, and they create the cross-functional aptitudes needed in modern industry. This program will allow students to move more easily into management careers in consulting or research and development, design, and marketing of new science-based products.

DEGREE REQUIREMENTS FOR MS IN ENVIRONMENTAL ANALYSIS AND DECISION MAKING

In addition to the core science courses, students are required to complete a three- to six-month internship and take a set of cohort courses focusing on business and communications. At the conclusion of the internship, students must present a summary of their internship project in both oral and written form as part of the Professional Master's Seminar.

Part-time students who already work in their area of study may fulfill the internship requirements by working on an approved project with their current employer. For general university requirements for graduate study, see pages 56-58, and see also Professional Degrees, page 58.

ADMISSION

Admission to graduate study in environmental analysis and decision making is open to qualified students holding a bachelor's degree in a related field that includes general biology, chemistry, calculus, differential equations, and linear algebra.

Department faculty evaluate the previous academic record and credentials of each applicant individually.

Science core courses

CEVE 401 *Introduction to Environmental Chemistry with lab* (F)

ESCI 450 *Remote Sensing* (S)

STAT 305 *Introduction to Statistics for Biosciences* (F, S)

Plus a single course from each of the following:

Group A

ESCI 451 *Analysis of Environmental Data* (F)

STAT 305 *Introduction to Statistics for Biosciences* (F, S)

Group B

STAT 385 *Methods for Data Analysis* (S)

STAT 410 *Introduction to Statistical Computing and Linear Models* (F)

STAT 421 *Computational Finance II: Time Series Analysis* (S)

STAT 422 *Bayesian Data Analysis* (S)

STAT 509 *Advanced Psychological Statistics I* (F)
Group C

CEVE 411 *Air Resource Management* (S)

CEVE 412 *Hydrology and Watershed Analysis* (S)

CEVE 434 *Chemical Transport and Fate in the Environment* (F)

CEVE 511 *Atmospheric Chemistry and Physics* (F)

CEVE 550 *Environmental Organic Chemistry* (S)

Cohort Courses

MGMT 750 *Management in Science and Engineering* (F)

NSCI 501 *Professional Master's Seminar* (F, S)
[required for **two** semesters]

NSCI 511 *Science Policy and Ethics* (S)

INTERNSHIP

An internship under the guidance of a host company, government agency, or national laboratory. A summary of the internship project is required in both oral and written form as part of the Professional Master's Seminar

ELECTIVE COURSES

Note: Each of these electives is not offered every year, and some courses may have prerequisites or require instructor permission

Students will choose five elective courses, three of which should be from one of the focus areas. At least one elective should be from the management and policy focus area. Recommended courses include, but are not limited to, the following:

Sustainable Development

BIOS 322 *Global Ecosystem Dynamics* (S)

BIOS 325 *Ecology* (S)

CEVE 406 *Introduction to Environmental Law* (S)

CEVE 411 *Air Resource Management* (S)

CEVE 434 *Chemical Transport and Fate in Environment* (F)

ECON 480 *Environmental Economics* (S)

ESCI 353 *Environmental Geochemistry* (S)

MGMT 617 *Managerial Decision Making* (S)

MGMT 661 *International Business Law* (S)

MGMT 674 *Production and Operations Management* (F)

MGMT 676 *Project Management/Project Finance* (S)

MGMT 721 *General Business Law* (S)

SOCI 367 *Environmental Sociology* (S)

Management and Policy

CEVE 406 *Introduction to Environmental Law* (S)

ECON 480 *Environmental Economics* (S)

ENGI 303 / CEVE 322 *Engineering Economics for Engineers* (F)

MGMT 721 *General Business Law* (S)

MGMT 661 *International Business Law* (S)

MGMT 617 *Managerial Decision Making* (S)

MGMT 751 *New Venture Creation in Science and Engineering* (S)

MGMT 674 *Production and Operations Management* (F)

MGMT 676 *Project Management/Project Finance* (S)

MGMT 636 *Systems Analysis and Database Design*

SOCI 367 *Environmental Sociology* (S)

Biological Sciences

BIOS 322 *Global Ecosystem Dynamics*

BIOS 324 *Wetland Ecosystems*

BIOS 325 *Ecology*

BIOS 424 *Microbiology and Biotechnology*

BIOS 425 *Plant Molecular Biology* (F)

CEVE 536 *Environmental Biotechnology*

ESCI 468 *Climate Change and Human Civilization* (S)

Chemistry

CENG 630 *Chemical Engineering of Nanostructured Materials* (S)

CEVE 511 *Atmospheric Chemistry and Physics* (F)

CEVE 550 *Environmental Organic Chemistry* (S)

ESCI 353 *Environmental Geochemistry* (S)

Fluid Dynamics and Transport

CENG 571 *Flow and Transport in Porous Media I* (S)

CENG 671 *Flow and Transport in Porous Media II* (F)

MECH 371 *Fluid Mechanics I* (F)

MECH 372 *Fluid Mechanics II* (S)

MECH 454/554 *Finite Element Methods in Fluid Mechanics* (F)

Engineering

CEVE 411 *Air Resource Management* (S)

CEVE 434 *Chemical Transport and Fate in the Environment* (F)

CEVE 530 *Physical/Chemical Processes in Environmental Engineering* (S)

CEVE 640 *Advanced Topics in Environmental Engineering* (F)

Advanced Computation

CAAM 378 *Introduction to Operations Research and Optimization* (F)

CAAM 420 *Computational Science I* (F)

CAAM 451 *Numerical Linear Algebra* (F)

CAAM 452 *Computational Methods for Differential Equations* (S)

CAAM 454 *Optimization Problems in Computational Engineering and Science* (S)

ESCI 441 *Geophysical Data Analysis* (F)

ESCI 451 *Analysis of Environmental Data* (F)

ESCI 454 *Geographic Information Systems* (F)

MECH 454/554 *Finite Element Methods in Fluid Mechanics* (F, S)

MECH 343 *Modeling of Dynamic Systems* (F)

MECH 417/517 *Finite Element Analysis* (S)

MECH 420 *Feedback Control of Dynamical Systems* (F)

MECH 563/ CAAM 563 *Engineering Approach to Mathematical Programming* (F)

MECH 679 / CEVE 679 *Applied Monte Carlo Analysis* (F)

STAT 421 *Methods in Computational Finance II* (S)

STAT 422 *Bayesian Data Analysis* (S)

STAT 431 *Mathematical Statistics* (F)

STAT 540 *Practicum in Statistical Modeling* (S)

STAT 541 *Multivariate Analysis* (S)

STAT 546 *Design and Analysis of Experiments and Sampling Theory*

STAT 553 *Biostatistics* (S)

ENVIRONMENTAL STUDIES

DIRECTORS

Paul A. Harcombe (*Ecology and Evolutionary Biology*)
Walter W. Isle (*English*)

PROFESSORS

Arthur A. Few (*Physics and Environmental Science*)
Neal Lane (*University Professor*)
Ronald J. Parry (*Chemistry*)
Ronald L. Sass (*Ecology and Evolutionary Biology*)

Mark R. Wiesner (*Civil and Environmental Engineering*)
Gordon G. Wittenberg (*Architecture*)
Kyriacos Zygourakis (*Chemical Engineering*)

ASSOCIATE PROFESSOR

Gerald R. Dickens (*Earth Science*)

LECTURER

Donald Ostdiek (*Political Science*)

The Environmental Studies Program offers several interdisciplinary courses for students interested in broadening their understanding of environmental issues. These courses are often team-taught by faculty from various areas of study.

Students wishing to major in an environmental program have three options: Environmental Science, Environmental Engineering (see Civil and Environmental Engineering), or Environmental Policy (see Policy Studies).

Students seeking advice regarding environmental programs may contact Dr. Isle, Dr. Harcombe, or the coordinator of the Center for the Study of Environment and Society.

Courses:

ENST 101 *The Sustainable Environment*
ENST 113 *Environmental Crisis Seminar*
ENST 301 *Introduction to the Environment*
ENST 302 *Environmental Issues—Rice into the Future*
ENST 400 *Independent Study*

See ENST in the Courses of Instruction section.

DEGREE REQUIREMENTS FOR BA IN ENVIRONMENTAL SCIENCE

Environmental Science is an interdisciplinary program that addresses environmental issues in the context of what we know about earth, ecology, and society. In addition to its science core, the major also seeks to provide students with some appreciation of social, cultural, and policy dimensions of environmental issues, as well as exposure to the technologies of pollution control. The double major is designed to accommodate:

- Students wishing to obtain a solid preparation for later graduate study in environmental science or other careers as environmental professionals (e.g., environmental economics, or environmental law)
- Students pursuing other careers (e.g., historians, lawyers, mechanical engineers, chemists) who hope to contribute to solutions to one of the major global issues of the 21st Century.

Students may take environmental science *only as a second major*. The 67-semester-hour (minimum) double major in environmental science may be taken in conjunction with *any* stand-alone major offered in any school of the university.

The key components of the double major include:

- Foundation course work in mathematics, physics, chemistry, and biology
- A set of 5 undergraduate core courses, required of all double majors, that acquaint undergraduates with a range of environmental problems encountered by scientists, engineers, managers, and policy makers. Core courses stress the components of the global environment and their interactions.
- 24 semester hours of environmental electives from four categories (1) social sciences and economics, (2) humanities and architecture, (3) natural sciences, and (4) engineering. Students may petition to have electives, in addition to those currently listed, apply toward the double major.

Major tracking forms are available in the Center for the Study of Environment and Society (CSES) office for declared Environmental Science majors.

Specific Course Requirements for a Double Major (BA) in Environmental Science include:

General Prerequisites

CHEM 121 or 151 *General Chemistry with Laboratory*

CHEM 122 or 152 *General Chemistry with Laboratory*

MATH 101 or 111 *Single Variable Calculus I*

MATH 102 or 112 *Single Variable Calculus II*

PHYS 101 or 125 or 111 *Mechanics*

PHYS 102 or 126 or 112 *Electricity and Magnetism*

BIOS 201 *Introductory Biology*

BIOS 202 *Introductory Biology*

Core Courses

BIOS 325 *Ecology*

ESCI 221 *Earth System Evolution and Cycles*

One of the following two courses

CEVE 411 *Air Resource Management*

PHYS 443 *Atmospheric Science*

2 of the following 3 courses

CEVE 401 *Introduction to Environmental Chemistry*

CEVE 412 *Hydrology and Watershed Analysis*

ESCI 451 *Analysis of Environmental Data*

Advanced Electives (24 hours; at least 6 semester hours from each category)

Category A—Social Sciences and Economics

CEVE 306 *Global Environmental Law and Sustainable Development*

CEVE 406 *Environmental Law*

ECON 480 *Environmental and Natural Resource Economics*

ENST 302/UNIV 303 *Environmental Issues: Rice into the Future*

POLI 317 *Congress*

POLI 331 *Environmental Politics and Policy*

POLI 332 *Urban Politics*

POLI 334 *Political Parties and Interest Groups*

SOCI 331 *Demography*

SOCI 367 *Environmental Sociology*

SOCI 411 *Social Change: Making Sense of Our Times*

Category B—Humanities and Architecture

ANTH 468/ESCI 468 *Climate Variability and Human Response*

ARCH 313 *Sustainable Architecture*

ARCH 351 *Social Issues and Architecture*

ENGL 367 *American Ecofeminism*

ENGL 378 *Literature and the Environment*

ENST 301/UNIV 300 *Introduction to the Environment: Environmental History and Literature*

Category C—Natural Sciences

BIOS 316 *Lab Module in Ecology*

BIOS 321 *Animal Behavior*

BIOS 322 *Global Ecosystem Dynamics*

BIOS 324 *Wetland Ecosystems*

BIOS 334 *Evolution*

CHEM 211 *Organic Chemistry*
 CHEM 395 *Advanced Module in Green Chemistry*
 ESCI 323 *Earth Structure and Deformation*
 ESCI 326 *Environmental Geology*
 ESCI 353 *Environmental Geochemistry*
 ESCI 421 *Paleoceanography*
 ESCI 430 *Trace Element and Isotope Geochemistry for Earth and Environmental Sciences*
 ESCI 442 *Exploration Geophysics*
 ESCI 454 *Geographic Information Science*
 ESCI 468/ANTH 468 *Climate Variability and Human Response*
Category D—Engineering
 CENG 503 *Chemical Engineering Process I: Air Pollution Control*
 CEVE 201 *Introduction to Environmental Systems*

CEVE 401 *Introduction to Environmental Chemistry*
 CEVE 403 *Principles of Environmental Engineering*
 CEVE 411 *Air Resources Management*
 CEVE 412 *Hydrology and Watershed Analysis*
 CEVE 434 *Chemical Transport and Fate in the Environment*
 CEVE 451 *Introduction to Transportation*
 CEVE 470 *Basic Soil Mechanics*
 CEVE 490 *Undergraduate Research in Environmental Engineering*
 STAT 300 *Model Building*
 STAT 305 *Introduction to Statistics for the Biosciences*
 STAT 310 *Probability and Statistics*
 STAT 339/PSYC 339 *Statistical Methods—Psychology*

FRENCH STUDIES

THE SCHOOL OF HUMANITIES

CHAIR

Michel Achard

PROFESSORS

Bernard Aresu

Jean-Joseph Goux

Lynne Huffer

Deborah Nelson-Campbell

PROFESSOR EMERITA

Madeleine Alcover

ASSOCIATE PROFESSORS

Michel Achard

Deborah A. Harter

Philip R. Wood

ASSISTANT PROFESSOR

Louisa Shea

VISITING ASSISTANT PROFESSOR

Julie Fette

DEGREES OFFERED: BA, MA, PHD

Courses in this department hone language skills in French while placing a diverse, generalized knowledge of French literature within a broad spectrum of cultural, historical, philosophical, and theoretical concerns. Students are also urged to take courses in fields closely related to French studies, including European and English history, literature, and philosophy. The department encourages students to spend time studying in a francophone country and to that end the French Studies department and Office of Student Advising will help students select an appropriate program.

DEGREE REQUIREMENTS FOR BA IN FRENCH STUDIES

For general university requirements, see Graduation Requirements (pages 14-15). Students majoring in French studies must complete at least 30 semester hours in upper-level courses (at the 300 or 400 level). A double major or an area major must complete 24 hours in upper-level courses.

Required Courses

FREN 311 *Major Literary Works and Artifacts of Pre-Revolutionary France*

FREN 312 *Major Literary Works and Artifacts of Post-Revolutionary France: The Romantic Legacy*

FREN 336 *Writing Workshop*

Electives

7 additional courses (for single majors)—at least 3 courses at the 400 level and at least 1 course from Group III (culture, history, and civilization)

5 additional courses (for double majors)—at least 2 courses at the 400 level and at least 1 course from Group III (culture, history, and civilization)

As many as 2 French courses taught in English may count toward a major in French studies. Students who have taken 300- and 400-level French courses (except those taught in English) cannot enroll simultaneously or afterward in 200-level French courses for credit. At least half of the courses for the major must be taken at Rice University. The department normally requires that the basic courses for the major (FREN 311, 312, and 336) be taken at Rice. Students who matriculate before 2003 may choose to graduate with the requirements listed in the *General Announcements* of the year of their matriculation or of their graduation.

Students with diplomas from French-speaking institutions must consult with the department before enrolling in courses, and all majors and prospective majors

must have their programs of study approved by an undergraduate adviser. Students wishing to complete the honors program in French studies should also consult one of the advisers.

Campus Activities—To acquaint students with French language and culture, the department sponsors a weekly French Table that meets at lunch in a college. The Club Chouette also organizes outings to French movies, sponsors guest lectures, and, in cooperation with the department, helps to produce a play during the spring semester. Students who maintain at least a B average in 2 or more advanced French courses and have a GPA of at least B, are invited to join the Theta chapter of the honorary Pi Delta Phi.

Travel Abroad—The department encourages majors to spend time living and studying in a francophone country. The Alliance Française of Houston offers a summer scholarship of \$3,000 each year to a qualified sophomore or junior for six weeks' study in France. The Clyde Ferguson Bull Traveling Fellowship, awarded each year to one graduating senior with a major or double major in French studies, permits the recipient to spend an entire year in France. Information about study abroad is available from the department faculty and in the Office of Academic Advising.

DEGREE REQUIREMENTS FOR MA AND PHD IN FRENCH STUDIES

Admission to graduate study in French, granted each year to a limited number of qualified students, requires a distinguished undergraduate record in the study of French literature or a related field and a capacity for independent work. All candidates should have a near-native command of the French language. For general university requirements, see Graduate Degrees (pages 57–58).

MA Program—In most cases students take two years to complete work for the MA degree in French studies. While graduate students normally take 500-level courses, as many as 2 courses at the 400 level may count toward fulfillment of the following course requirements. MA candidates must:

- Complete with satisfactory standing 27 semester hours (in addition to BA course work) of upper-level courses, plus 6 hours of independent study in the preparation of three advanced research papers to be defended before their MA committee. The selection of the paper topics must receive preliminary approval from the examination committee.
- Perform satisfactorily on a reading examination in one department-approved language other than French or English
- Perform satisfactorily on preliminary written and oral examinations conducted in French on works specified on the department reading list

PhD Program—Candidates normally take 500-level courses, but students entering with a BA may count toward their PhD degree as many as 3 courses at the 400 level; those entering with an MA may count 2 such courses. Graduate student enrollment in a course listed only at the 400 level, however, is subject to the instructor's approval. Candidates for the PhD degree must meet the following criteria, ensuring that they complete the language requirement and their preliminary exams one year before they submit a dissertation:

- In a program approved by the department, complete with high standing at least 57 semester hours of course work plus 36 thesis hours (for those already holding an MA degree, the requirement is 39 hours of course work plus 36 thesis hours). Six of these units may be fulfilled with a 600-level independent study course.

- Satisfactorily complete 1 course at the 300 level or above in a language other than French or English. With the permission of the graduate committee, this requirement may also be met through satisfactory performance on a written language examination or by such other means as the graduate committee may direct.
- Perform satisfactorily on preliminary written and oral examinations based on readings comprising both required and individually selected texts, including readings in French literature from all major periods and readings in philosophy and theory; history, cultural studies, and film; and postcolonial and gender studies. The oral exam can be taken only after successful completion of the written exam.
- Complete a dissertation, approved by the department, that represents an original contribution to the field of French studies.
- Perform satisfactorily on a final oral examination on the dissertation.

See FREN in the Courses of Instruction section.

GERMAN AND SLAVIC STUDIES

THE SCHOOL OF HUMANITIES

CHAIR

John Zammito

PROFESSORS

Peter Caldwell

Steven Crowell

Margret Eifler

Ewa M. Thompson

Klaus Weissenberger

ASSOCIATE PROFESSORS

Maria-Regina Kecht

Uwe Steiner

Sarah Westphal

ASSISTANT PROFESSOR

Christian Emden

DEGREES OFFERED: BA IN GERMAN STUDIES, BA IN SLAVIC STUDIES

GERMAN

The department offers instruction in the German language, in German literature (studied in the original and in translation), and in the achievements of German culture surveyed as a whole and in particular themes, genres, and periods. The department stresses linguistic competence, interdisciplinary study, and the role of German culture within the broad context of European history. Studies in film, cultural theory, and gender complement traditional studies of German literature, philosophy, history, and art.

The BA in German prepares students for graduate study in German, as well as for careers in law, business, international affairs, economics, and other academic fields. Our language acquisition courses maximize linguistic proficiency and prepare students for study abroad. Our freshman seminars are conducted in small groups and stress written and oral communication. Culture courses under the rubric "Mapping German Culture" are taught in English and consider major cultural and literary topics. For students who have some proficiency in German, the Mapping German Culture courses are accompanied by sections that conduct discussions and study sources in German. Upper-level literary courses and special topics seminars both polish linguistic skills and offer intensive study at a high level.

The department encourages and, by means of the Mitchell Fellowships, facilitates study abroad in Germany and Austria. There are weekly German tables in the colleges.

DEGREE REQUIREMENTS FOR BA IN GERMAN STUDIES

For general university requirements, see Graduation Requirements (pages 14–15). Students who have German as their only major must complete at least 27 semester hours above the 200 level. These 27 hours above 200 level = 8 three hour courses + 3 one-hour FLAC sections

- GERM 303 or 304 (bridge course in German literary/cultural language)
- GERM 411, 412 (basic German literature survey courses)
- 2 Special Topics Seminars (GERM 351 to any other 400-level Special Topics)
- 3 Mapping German Culture courses with attached one-hour FLAC sections (GERM 321–350)
- Option: GERM 303: *Composition and Conversation I* may be substituted for any one of the above courses except 304, 411, and 412.

Students who have German as a double major must complete at least 20 semester hours above the 200 level. These 20 hours above 200 level = 6 three-hour courses +2 one-hour FLAC sections.

- GERM 303 or 304 (bridge course in German literary/cultural language)
- GERM 411, 412 (basic German literature survey courses)
- 1 Special Topics Seminar (GERM 351 to any other 400-level Special Topics)
- 2 Mapping German Culture courses with attached one-hour FLAC sections (GERM 321-350)
- Option: GERM 303 *Composition and Conversation I* may be substituted for any one of the above courses except 304, 411, and 412.

Honors—Outstanding students are presented annually with the Max Freund Prize. The department also offers an honors program for majors excelling in their studies. Honors work consists of readings and research leading to a substantial honors essay under the supervision of a department faculty member (GERM 403). Students should consider this work to enhance preparation for graduate school.

SLAVIC

The School of Humanities is currently reviewing the status of the Slavics majors program. At this time, the School is not registering new majors in the Slavics program. The School of Humanities is committed, however, to courses in Russian language, Slavic culture, and East European history, which are expected to be offered next year and in the future.

DEGREE REQUIREMENTS FOR BA IN SLAVIC STUDIES FOR EXISTING MAJORS

For general university requirements, see Graduation Requirements (pages 14-15). Single majors in Slavic studies must complete 24 semester hours at the 300 level or above. Double majors must complete 18 semester hours at the 300 level or above. At least one of these courses must cover the entire Slavic area (e.g., SLAV 320 *Slavic Cultures*, RUSS 411 *Contemporary Russia*, or SLAV 412 *Contemporary Eastern and Central Europe*).

Courses in Polish are offered subject to availability of an instructor. Students may take two Slavic studies-related courses from outside the department, subject to approval by the Slavic studies advisor (Professor Thompson).

See GERM, PLSH, RUSS, and SLAV in the Courses of Instruction section.

HISPANIC STUDIES

THE SCHOOL OF HUMANITIES

CHAIR

Maarten van Delden

PROFESSORS

James A. Castañeda

Beatriz González-Stephan

ASSOCIATE PROFESSORS

Robert Lane Kauffmann

J. Bernardo Pérez

Rafael Salaberry

ASSISTANT PROFESSOR

Kate Jenckes

DEGREES OFFERED: BA AND MA IN HISPANIC STUDIES

The department offers courses on the literatures and cultures of the Spanish-speaking nations of the world, and on Spanish linguistics. The department stresses linguistic competence, interdisciplinary study, and a transnational perspective on Spanish and Spanish American literature and culture. In addition to courses on the novel, poetry, and the essay, the department also offers the opportunity to study film, art, cultural theory, translation, and gender. Our freshman seminars are conducted in English and stress written and oral communication. Qualified students may undertake independent work.

DEGREE REQUIREMENTS FOR BA IN HISPANIC STUDIES

For general university requirements, see Graduation Requirements (pages 14-15). Both single and double majors must take at least one course in Hispanic linguistics, one course in Spanish literature and/or culture, and one course in Latin American literature and/or culture. No more than two courses taught in English may count toward the major in Hispanic studies. More than half of the courses for the major must be taken at Rice University.

Single Majors—Students majoring in Hispanic studies must complete at least 30 semester hours in upper-level courses (SPAN 330 and above) as follows:

- 1 course between SPAN 330-SPAN 359
- 4 four courses between SPAN 360-SPAN 399
- 4 courses at the 400 level
- 1 elective course

Double Majors—Students double majoring in Hispanic Studies must complete at least 24 semester hours in upper-level courses (SPAN 330 and above) as follows:

- 1 course between SPAN 330-SPAN 359
- 3 courses between SPAN 360-SPAN 399
- 3 courses at the 400 level
- 1 elective course

For a list of recommended elective courses, please see department coordinator.

Honors—Every year, the department presents the *Cervantes Award for Outstanding Seniors* to its top students. The department also offers an honors program for majors excelling in their studies. Honors work consists of an independent research project leading to a substantial essay. It is undertaken in close cooperation with a departmental faculty member, who must first approve the thesis proposal.

DEGREE REQUIREMENTS FOR MA IN HISPANIC STUDIES

For general university requirements, see Graduate Degrees (pages 57-58). For the MA degree, candidates must:

- Complete with high standing an approved program that normally includes 24 semester hours in advanced courses, plus 6 hours of thesis work
- Pass a reading examination in one foreign language (other than Spanish) that has been approved by the department
- Perform satisfactorily on a written comprehensive examination in Spanish, which tests students' competence in Hispanic literature and linguistics
- Take SPAN 507 *Teaching College Spanish*
- Complete an acceptable thesis
- Perform satisfactorily on a final oral examination on the thesis

See SPAN in the Courses of Instruction section.

HISTORY

THE SCHOOL OF HUMANITIES

CHAIR

Peter C. Caldwell

PROFESSORS

John B. Boles

Peter C. Caldwell

Ira D. Gruber

Thomas L. Haskell

Michael Maas

Allen J. Matusow

Atieno Odhiambo

Patricia Seed

Richard J. Smith

Gale Stokes

Martin J. Wiener

John H. Zammito

PROFESSORS EMERITI

Katherine Fischer Drew

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Albert Van Helden

ASSOCIATE PROFESSORS

Edward L. Cox

Alex Lichtenstein

Ussama Makdisi

Carol E. Quillen

Paula A. Sanders

Lora Wildenthal

Joel W. Wolfe

ASSISTANT PROFESSORS

Alexander X. Byrd

G. Daniel Cohen

Eva Haverkamp

Allison Sneider

Sarah Thal

Kerry R. Ward

DEGREES OFFERED: BA, MA, PHD

The undergraduate program offers courses in the four main areas of ancient and medieval history, modern European history, U.S. history, and the histories of Asia, Latin America, and Africa. Faculty interests range from ancient Greek and medieval Jewish history to modern British and German; from areas in American history that include Colonial America, the Old and New South, the Civil War, and intellectual history to world military history; and from general global history to specific areas such as East Asian, Caribbean, and Middle Eastern history. The department encourages its majors to acquaint themselves with other humanistic disciplines, such as literature, fine arts, and philosophy; the contributions of political science, sociology, economics, and anthropology also are vital to historical studies. The graduate program, which trains a limited number of carefully selected students, offers studies in American history, European history, intellectual history, and global/world comparative history.

DEGREE REQUIREMENTS FOR BA IN HISTORY

For general university requirements, see Graduation Requirements (pages 14-15). Students majoring in history must complete at least 30 semester hours (10 courses) in history, with 18 hours (6 courses) at the 300 or 400 level. Students may apply advanced placement credit to no more than 6 of these hours (2 courses). Majors should select 2 of the required upper-level courses from a departmental list of seminars devoted mainly to writing and discussion. Departmental distribution requirements are as follows (students may not use advanced placement credit for these requirements):

Ancient and Medieval history—at least 1 course

Modern European history—at least 2 courses

U.S. history—at least 2 courses

Asian, Latin American, and African history—at least 2 courses

Some foreign language proficiency is desirable, and the department highly recommends that students who are contemplating graduate work in history study at least 1 foreign language in some depth.

Transfer Credit and Advanced Placement Credit—The Department of History grants transfer credit on a case-by-case basis to enrolled undergraduates (the registrar determines the hours to be credited). However, history majors must take **at least 18 semester hours** (6 courses) of the required 30 hours in history at Rice. No more than 4 courses may be satisfied through advanced placement and transfer credit. Advanced placement credit may not be used to satisfy departmental distribution requirements for a history major.

Rice students who wish to take a class for credit at another U.S. university should allow sufficient time to get advance confirmation from the department that the course is eligible: courses are eligible only if taken at a four-year institution and if the amount of required reading and writing is equivalent to that of a Rice History course. Rice students planning to study at a foreign university also must get course approval from the Office of International Programs.

After completing an approved course from either a domestic or a foreign university, students should submit a request for transfer credit, including evidence of the scope and work requirements of the course to be transferred (e.g., a syllabus, reading lists, and copies of exams and papers) to the department's director of undergraduate studies.

Honors Program—Qualified undergraduates may enroll for 6 semester hours of directed honors research and writing, completing an honors thesis in their senior year (these 6 hours are **in addition to** the 30 hours required for the major). Students must complete both semesters of HIST 403/404 to receive credit; the grade for the final project applies to the full 6 hours. Interested students who have a grade point average of at least 3.50 in their history courses should submit a substantial historical essay, an honors thesis proposal, and recommendations from the instructor to whom the paper was submitted and from their proposed adviser. Limited financial assistance is available for honors students to conduct research on their honors theses during the summer between their junior and senior years. After their admission to the program, a periodic workshop allows honors students to share problems and ideas. Once the adviser and another reader have evaluated the completed thesis, the director of the honors program determines whether to award honors. Students who miss the final thesis deadline (which is well before the end of their senior year) will receive a grade and credit for completed work, but no honors.

DEGREE REQUIREMENTS FOR MA AND PHD IN HISTORY

The Rice University graduate program in history is primarily a PhD program. Students who have a BA in history (or its equivalent) from an acceptable institution are eligible to apply to the PhD and MA programs. Although many successful candidates to the PhD program have an MA or other advanced degree, advanced study is not a requirement for admission. Graduate degrees are offered in U.S., European, intellectual, and other areas of history. Further information is available on request from the department. For general university requirements, see Graduate Degrees (pages 57-58).

The department awards graduate tuition waivers and fellowship stipends, within the limits of available funds, to qualified PhD candidates with demonstrated

ability. University funding is not available for masters program study only. All graduate students in the history department are expected to participate in the professional activities of the department as part of their training. These include, but are not limited to, assisting with the *Journal of Southern History* or the *Papers of Jefferson Davis* and serving as research assistants or teaching assistants for department members. Insofar as possible, these assignments are kept consistent with the interests of the students.

MA Program—The department gives priority to applicants for the PhD Completion of the MA degree usually takes two years; no more than three years may elapse between graduate admission and the completion of the degree unless the department Graduate Committee approves an extension. MA degrees are awarded in two ways: (1) completion of one year of course work (24 credit hours) and a thesis written and defended in an oral examination during the second year; and (2) completion of two years of course work (48 credit hours), normally including at least 2 seminar research papers.

PhD Program—Doctoral candidates must prepare themselves in three fields of history: two in their major area of concentration, whether European, U.S., or other history, and a third in an area outside of that concentration (e.g., if the major area is European history, the third field must be in U.S. or other non-European history; and if the major area is U.S. history, the third field must be in European or other non-U.S. history, and so on). Students who wish to pursue a third field in an area outside the department should petition the Graduate Committee by the end of their second semester.

The requirements for completing the degree will be administered as flexibly as possible within the bounds of the general university regulations. These requirements state that the PhD degrees "will be awarded after successful completion of at least 90 semester hours of advanced study and an original investigation reported in an approved thesis." Passing the qualifying exam and receiving approval of a dissertation prospectus allows the student to apply for formal admission to candidacy for the PhD degree.

For the PhD, candidates must:

- Prepare themselves thoroughly in three examination fields.
- Take 8 graduate seminars, including Introduction to Doctoral Studies.
- Pass reading examinations in the principal language of research (unless it is English) and one other language (not English).
- Perform satisfactorily on written and oral examinations. For students entering with a BA, those examinations will normally be taken before the beginning of the fifth semester and no later than the beginning of the sixth semester. Students entering with an MA may take their examinations earlier, with departmental approval.
- Complete a dissertation presenting the results of original research.
- Defend the thesis in a public oral examination.

See HIST in the Courses of Instruction section.

KINESIOLOGY

THE SCHOOL OF HUMANITIES

CHAIR

Bruce Etnyre

PROFESSORS

Bruce Etnyre

Nicholas K. Iammarino

PROFESSORS EMERITI

Eva J. Lee

Hally B.W. Poindexter

Dale W. Spence

ASSOCIATE PROFESSOR

James G. Disch

ASSISTANT PROFESSORS

Clark Haptonstall

Peter G. Weyand

ADJUNCT PROFESSORS

Becky Gorham

Mark Jenkins

LECTURERS

Marlene A. Dixon

John F. Eliot

Brian T. Gibson

Cynthia A. Lanier

PART-TIME LECTURERS

Gwendolyn Adam

Roberta Anding

Cassius B. Bordelon, Jr.

Joseph Pogge

Kristy Vandenberg

DEGREE OFFERED: BA

The department was one of the first of its kind in the nation to institute an academic program structure that allows students to concentrate their efforts on a specific subdiscipline. Academic programs include sports medicine, sport management, and health science. Detailed requirements of each program can be obtained on the departmental webpage at <http://kinesiology.rice.edu>.

DEGREE REQUIREMENTS FOR THE BA IN KINESIOLOGY

For general university requirements, see Graduation Requirements (pages 14-15). A minimum of 120 semester hours is required for a bachelor of arts degree in kinesiology. Because of the interdisciplinary and diverse nature of the field of kinesiology, each student is required to specify an academic program concentration within the major.

SPORTS MEDICINE PROGRAM

Students who choose the sports medicine program of the kinesiology department typically continue their education at the graduate level or plan on attending medical school or other medically related professional schools such as physical therapy. Graduates may also be directly employed in medical and corporate settings, which include both preventative and rehabilitative programs. Graduates who choose not to seek post-baccalaureate education are generally encouraged to obtain certification for exercise testing, physical fitness evaluation, or exercise prescription through the American College of Sports Medicine at <http://www.acsm.org/>.

The sports medicine curriculum intends to provide a strong natural science foundation and to interface this foundation with application to the human body. Prerequisite courses in chemistry and physics, elective courses in biology and biochemistry, as well as an array of required and elective courses offered within the department provide this foundation. The sports medicine program is the only academic specialization on campus that provides detailed exposure to human anatomy and human physiology. In addition, students receive a solid foundation in nutrition, biomechanics, sports psychology, motor learning, measurement and statistics, exercise physiology,

and sports medicine. Practical experience is afforded through several academic labs. Other elective courses include writing for professional communication, epidemiology, case studies in human performance, motor control, advanced exercise physiology and preventative medicine, research methods, and muscle physiology and plasticity. During advising sessions, students are encouraged to select from these electives according to their respective career goals. Students in the sports medicine program are expected to develop a strong scientific knowledge base as well as adept critical reading, writing, and oral communication skills.

Qualified students of the sports medicine program will be encouraged to participate in an independent study. This independent study allows integral involvement in basic or applied research directed by a faculty adviser. The application (proposal) process for independent studies is outlined in the webpage listed below. Qualified students are also encouraged to apply for any one of a variety of highly competitive internships. The internships generally provide students with an opportunity to experience the application of preventative and rehabilitative sports medicine concepts and practice at a health care or corporate setting.

SPORT MANAGEMENT PROGRAM

Director: Clark Haptonstall

Sport management is an interdisciplinary field of study of fairly modern development. It first appeared in the curricula of American universities under a variety of designations in the early to mid-1980's. Rice University became a pioneer institution in integrating this field into the traditional academic area known as kinesiology by making sport management one of the original programs when the department was reorganized into its present configuration.

As a distinct body of knowledge and field of study, sport management draws from a wide range of academic disciplines: economics, sociology, political science, psychology, law, communication, and managerial studies. Each discipline can be applied to the business enterprise of amateur and professional sport, as well as the management of highly effective teams in sport, corporate America, or other management related professions. While public and private sector sport operation is the topic of a large segment of the curriculum, the thoroughly interdisciplinary emphasis aims at educating students in the skills and theory necessary to assume responsible leadership roles in and out of sport.

Career preparation for leadership and entrepreneurial positions is the ultimate goal of sport management at Rice. Students will acquire a solid foundation in public speech, professional writing, and leadership and thus will be competitive for opportunities at the country's best law and business schools, as well as with journalism programs and premier consulting corporations.

Students wishing to gain employment in the sport industry should pay particular attention to practical experience. Networking and out-of-class development often plays the most significant role in obtaining jobs and promotions along high profile career paths such as those in collegiate or professional sports organizations. Students interested in careers in public relations, media, event direction, or promotion, office management, management of coaching and scouting, human resources, business development, sports information, or advertising will therefore need to demonstrate a commitment to securing and completing internships. Membership in national sport societies, specifically the North American Society for Sport Management (NASSM)—the leading academic association in this field and governing body from which Rice is in the process of obtaining national accreditation—is strongly recommended.

Highly qualified students will also be encouraged to seek an honors major, a double major, and/or consider pursuit of an advanced degree in business, law, sport management, or organizational psychology.

HEALTH SCIENCES PROGRAM

Director: Dr. Nicholas K. Iammarino

The goal of the health science program is to provide students with a fundamental background in health promotion and disease prevention. This background will enable them to understand the complexities of maintaining an optimal level of personal health while also considering the role that health promotion plays in society and the mechanisms that affect community health. The health science program is viewed as an excellent option for undergraduate students who are preparing to enter graduate school in health education, health promotion, or public health, as well as other health-related graduate or professional programs such as medicine or dentistry.

Students must complete a total of 42 semester hours in addition to the general university requirements (see pages 14–15). Six lecture courses are required for a total of 18 required hours. These required courses cover the structure and function of the human body (Human Anatomy), an introductory course designed to acquaint students with the fundamental concepts of health and models of health promotion (Concepts of Health Science), understanding and assessing community health needs (Principles of Community Health), methods of understanding the disease process (Epidemiology), a course that introduces statistics and measurement (Measurement and Statistics), and a professional preparation course (Foundations of Health Promotion/Health Education) that introduces students to the profession.

The remaining 24 semester hours are drawn from elective courses that are both within the kinesiology department and, at present, more than 20 courses from other academic departments. In keeping with the university's interest in an interdisciplinary approach to undergraduate education, this allows students to choose health-related courses within the natural sciences, social sciences, and humanities divisions.

See HEAL and KINE in the Courses of Instruction section.

LIFETIME PHYSICAL ACTIVITY PROGRAM

STUDENT AFFAIRS

DIRECTOR

Dr. Daniel N. McMasters

INSTRUCTORS

Mauro Hamza

Tracy King

Christine Lidvall

Chris Shouts

Rebecca Valls

Scott Wray

The mission of the Lifetime Physical Activity Program (LPAP) is to provide a multifaceted learning experience via a program of physical activity to foster physical, social, and emotional wellness. The ultimate goal of the LPAP is to provide each student with:

- Knowledge of health-related concepts of physical activity
- Cognitive and behavioral skills
- An understanding of physical activity as a mode of improved quality of life throughout the life-span
- A sense of emotional well-being
- Satisfying social interaction
- Knowledge of rules and strategies
- An opportunity to learn an activity which is not necessarily mainstream in U.S. culture
- Professional instruction specific to the course material
- An introduction to intramural sports, sport clubs, dance theatre, and recreational programs
- Improved quality of life at Rice University

Lifetime physical activity classes are strongly recommended for all first-year students, including transfers who have not had an equivalent course elsewhere. To satisfy the LPAP requirement, students must complete 2 courses in the Lifetime Physical Activity Program that do not carry degree credit and do not count toward the total semester hours at graduation. Students with disabilities may make special arrangements to satisfy this requirement. Students may not repeat LPAP courses and students can only take four hours of LPAP courses for credit that count toward the total semester hours at graduation.

The LPAP offers approximately 40 courses each semester. Within scheduling constraints, a student may select a course which offers activities that satisfy his/her interests. The LPAP offers a variety of activities. Some of the current activities offered include racquet sports (tennis, racquetball, badminton), fitness activities (aerobics, personal fitness, weight training, cycling), aquatics, dance (Latin ballroom, ballroom, modern, ballet, country western, Middle Eastern, classical Indian), martial arts, team sports (flag football, basketball, volleyball, soccer, softball), and other activities such as fencing, self defense for women, golf, disc golf, yoga, and nutrition.

See LPAP in the Courses of Instruction section.

LINGUISTICS

THE SCHOOL OF HUMANITIES

CHAIR

Masayoshi Shibatani

PROFESSOR

Stephen A. Tyler

PROFESSORS EMERITI

James E. Copeland

Philip W. Davis

Sydney M. Lamb

ASSOCIATE PROFESSORS

Michel Achard

Suzanne E. Kemmer

Nanxiu Qian

ASSISTANT PROFESSORS

Claire Bower

Katherine Crosswhite

Robert Englebretson

Nancy Niedzielski

ADJUNCT ASSOCIATE PROFESSOR

Spike Gildea

ADJUNCT ASSISTANT PROFESSOR

I. Wayman Arka

LECTURER AND PLAYWRIGHT

IN RESIDENCE

E. Douglas Mitchell

DEGREES OFFERED: BA, MA, PHD

BA IN LINGUISTICS

The department offers both a major program in linguistics and a Certificate in Teaching English as a Second Language, which may be earned with or without a linguistics major. For general university requirements, see Graduation Requirements (pages 14-15). In addition, students must satisfy the distribution requirements and complete no fewer than 60 semester hours for a total of at least 120 semester hours.

Because human language is a multifaceted object of study, linguistics is, by its nature, an interdisciplinary field. The undergraduate major in linguistics provides both an in-depth grounding in the field as well as cross-disciplinary breadth. Students beginning a linguistics major should take LING 200, which is a prerequisite for many upper-level courses in the department. All majors are required to take at least 8 courses (24 semester hours) in linguistics at the 300 level or above, including 4 core courses listed below:

Core Courses

LING 300 *Linguistic Analysis*

LING 301 *Phonetics* or LING 311 *Phonology*

LING 402 *Syntax and Semantics* or LING 416 *Linguistic Universals and Typology*

LING 305 *Historical Linguistics* or LING 315 *Semantics: Introduction to the Study of Meaning* or LING 415 *Sociolinguistics*

No more than 1 independent study course may be counted toward the major requirements. In addition, competency in 1 language other than English is required. This requirement may be satisfied by 2 courses in a foreign language at the 200 level or above or equivalent, or at the 100 level or above for non-European languages. The general linguistics major requires, in addition to the 4 core courses and the language requirement, at least 4 upper-level linguistics electives.

Students may elect either a general linguistics major or one of four areas of concentration. Majors who plan to pursue graduate training in linguistics are recommended to choose one of the areas of concentration. These students also are urged to apply for admission to the honors program by the end of their junior year. The requirements for the various concentrations include additional courses, as follows.

- **Language Concentration.** In addition to the basic language competency required of all majors, the language concentration requires an advanced level competency in a different language. This can be satisfied by 2 language courses taught in a language other than English at the 300 level or above, or equivalent. In addition to the core courses, 4 advanced linguistics electives also are required, which should be chosen in consultation with the linguistics adviser. Courses in the structure or history of the languages studied are especially appropriate.
- **Cognitive Science Concentration.** This concentration requires 3 additional courses focused on the cognitive aspects of human language, selected from LING 306, 315, 317, 411, and 412; 2 courses from cognitively related disciplines (psychology, computer science, anthropology, philosophy) as approved by the major adviser; and 2 other advanced linguistics electives.
- **Language, Culture, and Society Concentration.** For an in-depth grounding in a particular language and culture, this concentration requires 2 language courses at the 300 level or above. The language may be the same as that used to satisfy the basic language competency. Besides the 4 core courses, the student must select 2 courses from LING 313, 406, 415, 419, 421, or 424; and 2 more linguistics electives. Finally, 2 courses in sociocultural studies outside the department are required, and the selection must be approved by the major adviser. Examples of appropriate courses are ANTH 353, PSYC 202, RELI 393, or HIST 250.
- **Second Language Acquisition Concentration.** Two language courses at the 300 level or above are required; the language may be the same as that used to satisfy the basic language competency. In addition to the linguistics core courses, 4 additional courses are required as follows: LING 340 and LING 417, LING 394 or a foreign language equivalent (e.g., Structure of Spanish, Structure of German, etc.) as approved by the major adviser, and one of the following: LING 309, LING 313, LING 415, LING 418, LING 419, LING 420, LING 422, or LING 490.

Honors Program—The departmental honors program provides selected undergraduate majors with the opportunity to conduct supervised research within their area of specialization in the major. Majors planning to pursue graduate training in linguistics or a related field are strongly encouraged to apply, as well as others who wish to add the experience of an intensive, individualized research project to their undergraduate education.

Application to the honors program should be made in person to the undergraduate adviser in the second semester of a student's junior year. In support of the application, the student should prepare a brief description of the proposed project signed by the faculty member who is to supervise the work. Acceptance into the program is by agreement of the linguistics faculty. On acceptance, the student will enroll in LING 482, with the supervising faculty member named as instructor.

The honors program framework is designed to facilitate the development of a mentoring relationship between student and faculty member. Students are thus expected to consult with the project supervisor periodically regarding their progress; the supervisor will provide research guidance and general support.

With the appropriate completion of major requirements and the honors project or thesis, the student will graduate with departmental honors as follows: "With Distinction," "With High Distinction," or "With Highest Distinction," as determined by the linguistics faculty.

Certificate in Teaching English as a Second Language—This program is designed for students who plan to teach English to nonnative speakers in the U.S. or abroad. The Certificate in Teaching English as a Second Language provides undergraduate-level training in applied linguistics and the English language, as well as some practical preparation for English language teaching. It can be easily combined with a major in linguistics, education, or English. To enroll in the program, see the director of the ESL Certificate Program or the linguistics undergraduate adviser.

The program consists of 4 required courses and a practical component.

Required Courses

LING 200 *Introduction to the Scientific Study of Language*

LING 340 *Theory and Methods of Teaching ESL*

LING 394 *Structure of the English Language*

LING 205 *Language and Society* or LING 309 *Psychology of Language* or LING 313 *Language and Culture* or LING 415 *Sociolinguistics*

Practical Component—The practical component consists of a total of 20 contact hours of language teaching/tutoring experience. This requirement may be filled by tutoring in the Rice Student Volunteer Program or by teaching in a high school or community ESL program. Students will be expected to write a short report on their teaching experience.

Successful completion of the certificate program must be certified by the director of the ESL Certificate Program and will be indicated on the Rice transcript upon completion of degree requirements.

PHD IN LINGUISTICS

The doctoral linguistics program at Rice emphasizes the study of language use and functional/cognitive approaches to linguistic theory. Areas of particular research strength in the department include field studies of particular languages (e.g., languages of North and South America; Austronesia; Africa; Europe; and East Asia), typology, language and mind (cognitive linguistics, neurolinguistics, schema-based theories, lexical semantics), language change (diachronic typology, grammaticalization theory, semantic change, language classification, and Indo-European linguistics), and discourse analysis, including corpus linguistics. Additional research areas represented are second language acquisition and applied linguistics.

The program only admits students planning to study for the PhD degree full time. Undergraduate preparation should ideally include language study and course work in linguistics or disciplines related to linguistics, such as anthropology, applied linguistics, psychology, or computational modeling. Interdisciplinary interests are encouraged. A master's degree may be earned during progress to the PhD degree. Admission to the program is competitive, and an advanced degree is not required. Students admitted to the program are generally offered financial support in the form of tuition scholarships and/or stipends for living expenses.

During the first year of residence, each entering student works closely with the graduate adviser to choose a plan of study congruent with the demands of the program and the student's interests. Emphasis throughout the program is on a close working relationship with faculty. Students should select areas of specialization that fit well with faculty research interests and activities. See the departmental homepage at <http://linguistics.rice.edu>.

Students with a master's degrees in linguistics will normally progress through the degree program in four years; those without in five. With no prior linguistics background, course work in the first two years will generally include:

- 2 courses in the area of phonetics/phonology
- 2 courses in the area of syntactic/semantic analysis
- 1 two-course sequence in field methods
- 1 problem-solving course in linguistic analysis
- 2 courses in other subfields of linguistics

Prior preparation in linguistics will be assessed with regard to its equivalence to particular Rice courses. Students are also normally expected to serve as teaching assistants for 1 course per year during the time they are receiving departmental support; such service is included in the normal course load. Graduate students are required to register for at least 12 hours credit per semester before advancing to candidacy.

In the second and third years in addition to course work, students prepare an in depth research paper on a topic chosen in consultation with two separate committees of the faculty. These two papers must represent different areas of the field, as determined by the linguistics faculty. A separate committee of the three faculty members, to be approved by the student's advisor, referees each paper. In addition, one of the papers must be presented in the departmental colloquium, and it is expected that students submit their work for presentation at relevant professional meetings, and publish such work in conference proceedings and/or journals (funds may be available to defray the cost of the travel to meetings). Finally, students must demonstrate reading competency in 2 research languages.

In the course of the second and third years, the student should work toward establishing a close working relationship with various members of the faculty such that multiple faculty members are familiar with the students work. After the student's second paper is accepted, a dissertation advisor is selected and a doctoral committee is formed, by mutual agreement of the student and the anticipated committee members.

During the fourth year, students present to their committee members a third research paper consisting of a substantial dissertation proposal and a comprehensive bibliography. This proposal may take the form of a grant proposal to an external funding agency, particularly in the case of proposed fieldwork. Upon completion of the prospectus, students will submit to an oral qualifying exam, to be administered by the dissertation committee. The exam will consist of two parts, a general exam, demonstrating the student's knowledge of the field, and a dissertation prospectus hearing. Upon completion of this qualifying examination, the student will advance to candidacy.

The doctoral research project may require fieldwork before writing the dissertation; however, the student is expected to consult regularly with the committee members during the writing process. After a complete draft of the dissertation is submitted, the student defends the dissertation publicly. When the final version of the dissertation is accepted by the doctoral committee and filed with the university, and all other requirements are certified as filled, the degree is then granted.

See LING and SANS in the Courses of Instruction section.

MANAGEMENT

THE JESSE H. JONES GRADUATE SCHOOL OF MANAGEMENT

DEAN

Gilbert R. Whitaker, Jr.

PROFESSORS

Richard P. Bagozzi

Bala G. Dharan

Jennifer M. George

G. Anthony Gorry

George Kanatas

H. Albert Napier

Ronald N. Taylor

Wilfred C. Uecker

Robert A. Westbrook

Gilbert R. Whitaker, Jr.

Edward E. Williams

Duane Windsor

Stephen A. Zeff

RESEARCH PROFESSORS

Bob Bixby

Marc J. Epstein

ASSOCIATE PROFESSORS

Shannon Anderson

Richard R. Batsell

Steven C. Currall

Jeff Fleming

Karen Nelson

Barbara Ostdiek

Douglas A. Schuler

Seethu Seetharaman

D. Brent Smith

Jing Zhou

ASSISTANT PROFESSORS

Sharad Borle

Maragret Cording

Utpal Dholakia

Christopher Dowing

Jill Foote

Gustavo Grullon

Evgeny Lyandres

Bradley Paye

Andrew Perkins

Francisco Roman

Brian R. Roundtree

Siddharta Singh

Shane Underwood

Fu-Kuo Albert Wang

Masahiro Watanabe

Carmen Wigelt

James P. Weston

Sally Widener

Yuhang Xing

Yeosun Yoon

Yan Anthea Zhang

Rui Zhu

SENIOR LECTURERS

Deborah J. Barrett

Pamela Kennedy

ADJUNCT PROFESSORS

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Anne Marie Ainsworth

Stephen J. Banks

Marc Boom

Cheyenne Currall

Rodney Eads

Jerry E. Finger

Robert N. Flatt

Joseph R. Gagliardi

Jack M. Gill

Terry Hemeyer

Vincent Kaminski

Robert Lesnick

Leo Linbeck III

Dennis Loughridge

Shahid Malik

Upendra Marathi

Timothy Nash

Robert B. Parke, Jr.

Nicholas R. Rasmussen

David Ross, III

Armand Shapiro

Joan E. Shook

Robert B. Stobaugh

Laurence Stuart

Stephen Whitney

LECTURERS

Shahid Ansari

W. Clifford Atherton

David M. Austgen

John A. Baker

Lovett Baker

E. Scott Crist

Lawrence Hampton

John Kehoe

Steven F. Koch

Kenny Kurtzman

James P. Mandel

Dennis E. Murphree

Elizabeth O'Sullivan

Phaedon Papadopoulos

Elizabeth A. Peters

David Skinner

James R. Sowers

V. Richard Viebig, Jr.

Stuart Wagner

Alan Westheimer

Gale Wiley

VISITING ASSOCIATE

PROFESSOR

Steven J. Maranville

DEGREES OFFERED: MBA, MBA/MASTER OF ENGINEERING

The Jesse H. Jones Graduate School of Management was established in 1974 through a gift from Houston Endowment, Inc. The school provides its highly select graduate students with unique opportunities for professional training in management. The master of business administration (MBA) program includes elective offerings in accounting, entrepreneurship, finance, international business, information technology, marketing, operations management, organizational behavior and human resource management, healthcare management, and strategic management and planning.

The MBA is also offered in a format designed for executives who do not wish to interrupt their careers while they pursue their degrees. Meeting every other weekend, the MBA for Executives Program features the same content and faculty as the traditional two-year MBA program, and is completed in 21 months. This general management program offers no tracks for specialization; however, much of the content of elective courses in the two-year MBA has been incorporated into the course modules for the executive format. The MBA for Executives Program offers 4 electives at the end of the 21-month period.

A joint MBA/master of engineering degree offered by the Jones Graduate School and the George R. Brown School of Engineering, in any of the departments of engineering or in statistics, prepares students to become managers in organizations requiring a high level of technical expertise and management skills.

A joint MBA/MD offered by the Jones Graduate School and Baylor College of Medicine prepares students to become both physicians and managers in institutions involved in the delivery of high-quality health care, as well as biotechnology-focused industries, health insurance/managed healthcare firms, and pharmaceutical and medical supply and equipment companies.

Although no undergraduate major is offered, undergraduate accounting courses are available.

ADMISSION REQUIREMENTS FOR JONES GRADUATE SCHOOL

For general information, see Admission to Graduate Study (pages 56–57). Applicants to the MBA program must submit scores on the Graduate Management Admission Test (GMAT) rather than the Graduate Record Examination (GRE), and, unless they received an undergraduate degree from a U.S. college or university, foreign nationals whose native language is not English must submit recent scores on the Test of English as a Foreign Language (TOEFL). Admission to the Jones Graduate School is open to students regardless of their undergraduate major, but it is highly selective and limited to those who have performed with distinction in their previous academic work and on the GMAT.

MBA Program—Although the MBA program has not established specific prerequisite courses for admission, students may find it beneficial to have a background that includes undergraduate course work in principles of accounting, principles of microeconomics, and mathematics. Because spreadsheet and word-processing software are used extensively in course work, students should have a thorough understanding of these types of software packages before enrolling.

MBA for Executives—In addition to meeting the standards for admission to the MBA program, students admitted to the executive program typically have at least 10 years of relevant work experience.

Joint MBA/Master of Engineering Program—To enter the joint degree program, applicants must be accepted by both the Jones Graduate School and the engineering department in which they wish to enroll. The program requires the Jones Graduate School application and the GRE, rather than the GMAT. Some engineering departments require advanced tests as well.

Joint MBA/MD Program—To enter this joint degree program, applicants must first be accepted by Baylor College of Medicine and then apply separately to the Jones Graduate School. The MCAT is accepted rather than the GMAT. Two years of medical school are required before starting MBA classes.

DEGREE REQUIREMENTS FOR MBA

For the MBA degree, students must:

- Spend at least 2 academic years in residence at Rice

- Complete at least 60 semester hours in course work
- Register for no fewer than 15 hours and no more than 18 hours each semester (any other registration requires special permission)

All registration and drop/add forms require the signature of the MBA program director or a designee. The school, which must approve all courses, specifies the sequence of required first-year courses at registration for each entering class.

Waivers and Transfers of Credit—At its sole discretion, the school may allow students to transfer credits. This does not necessarily reduce the residence requirement, but it does make additional elective courses available. Students otherwise must follow the prescribed curriculum of study and are not allowed to waive any core requirements.

First-Year Courses—Students must complete at least 32 approved credit hours. The modular core curriculum includes financial accounting, data analysis, business ethics, information technology, marketing, finance, managerial economics, organization behavior, competitive strategy, managerial and leadership skills, managerial communication, economic environment of business, globalization of business, cost management, operations management, business-government relations, organization theory and change management, and 2 electives. During the second semester, teams of students participate in an action learning project in which they work at a company to solve a specific problem. This project allows them to integrate the business disciplines they studied and to turn knowledge into action. The core courses serve as prerequisites for required and elective courses taken in the second year.

Second-Year Courses—Students must complete at least 28 credit hours that include required courses in entrepreneurship and strategy formulation and implementation, and 25 credit hours of electives.

Areas of Interest—Although MBA students are not required to select a formal elective concentration for degree purposes, they may wish to choose 1 or more areas of interest from among the following: accounting, entrepreneurship, finance, general management, international business, information technology, marketing, operations management, organizational behavior and human resource management, healthcare management, and strategic management and planning. The MBA program director and individual faculty members offer students advice on course selection. Students may also take upper-level or graduate courses from other departments at Rice. Students may not credit basic foreign language courses toward the MBA degree, but advanced language courses may qualify with approval from the MBA program director.

DEGREE REQUIREMENTS FOR MBA FOR EXECUTIVES

This degree requires completion of 11 mini-semesters totaling 56 credits, including Extended Learning Labs. The program is a lock-step progression in which all students take required courses in an identical sequence, except for the 4 elective courses at the end of the 21-month period.

DEGREE REQUIREMENTS FOR JOINT MBA/MASTER OF ENGINEERING

Students may earn this nonthesis engineering degree in the fields of chemical engineering, civil engineering, computational and applied mathematics, computer science, electrical and computer engineering, environmental science and engineering, mechanical engineering and materials science, and statistics. Ordinarily, the engineering degree takes one academic year to complete, whereas the MBA requires two. Joint-degree candidates, however, can fulfill requirements for both degrees in two academic years.

For the joint MBA/master of engineering degree, students must complete:

- At least two academic years in residence at Rice
- 63 semester hours in approved course work:
 - 24 hours in an engineering discipline
 - 39 hours in business administration

Students plan their course schedules in consultation with the engineering department in which they are enrolled and with the MBA program director.

DEGREE REQUIREMENTS FOR THE JOINT MBA/MD PROGRAM

Students may earn both MBA and MD degrees in five years. They divide their time as follows:

- Years one and two—medical training at Baylor College of Medicine
- Year three—core MBA courses at Rice
- Year four—MBA courses at Rice, including 3 semester hours of required courses and 12 semester hours of healthcare electives during the fall semester, and medical training at Baylor College of Medicine during the spring semester
- Year five—medical training at Baylor College of Medicine

Students use the summer between the third and fourth years to perform healthcare research programs or externships. Students receive their MBA degree from Rice after they have completed 45 hours of approved management course work; they receive their MD degree after they have completed the requirements specified by Baylor College of Medicine.

ACADEMIC AND PROFESSIONAL STANDARDS

Students must meet both academic and professional standards to continue academic work and to graduate. In accepting admission to the MBA degree program, all students agree to be governed by the standards and procedures for dismissal or disciplinary action stated below.

Academic Standards—A minimum cumulative grade point average of 3.00 (B) is required for graduation. All courses taken for the MBA degree (including approved courses taken at the university but outside the Jones Graduate School) are counted in the cumulative grade point average calculation.

Students with a cumulative grade point average lower than 3.00 at the end of any semester will be notified of dismissal and may no longer register for courses. A student who has been notified of dismissal may appeal to the Academic Standards Committee of the Jones Graduate School. The committee will decide, based on the circumstances of the appeal, whether the student (1) may resume studies on probation, (2) is to be suspended for one semester or an academic year, or (3) is to be dismissed from the MBA program.

Students proposing to return after a period of academic suspension must apply to the Academic Standards Committee and receive permission to be readmitted.

Only grades of C and higher are counted for credit toward graduation. If students receive a grade lower than C in a course required for graduation, they must repeat the course. If students receive a grade lower than C in an elective course, they need not repeat the specific course, but they must make up the hours.

Students may retake a failed course only once and then only if their cumulative grade point average is 3.00 or higher, or they have received the permission of the Academic Standards Committee to do so. Students who fail a course twice will be

notified of dismissal. (Students may not take any course for which the failed course is a prerequisite until they pass the prerequisite course.)

Students on academic probation cannot be candidates for student offices, cannot graduate or drop courses, and must complete all future courses with a grade of C or above. Students are removed from probation only upon achieving a cumulative grade point average of at least 3.00 at the end of the following semester of work.

Students who have completed the required number of hours for the MBA degree, the joint MBA/master of engineering degrees, or the joint MBA/MD degree, but who have a cumulative grade point average lower than 3.00, are dismissed without graduation. If, in an appeal to the Academic Standards Committee, a student can substantiate a claim of extenuating circumstances, i.e., those beyond the student's control, the student will be permitted to take additional course work at the university within the next year to raise his or her grade point average to 3.00.

Professional Standards—MBA students are held to the high standards of professional conduct expected of managers—standards substantially exceeding those expected of them simply as students. Students may be dismissed or suspended for failure to meet professional standards, as defined in the University Code of Conduct. The dean may place a student on disciplinary probation for unacceptable conduct, giving oral and written notice that future misconduct will lead to filing of specific charges. (This probationary notice, however, is not required as a precondition for filing specific charges.)

ACADEMIC REGULATIONS

Grading Policy

For All Courses:

- The grade of A+ should be given only as an exceptional grade reflecting extraordinary achievement by a student.
- Only grades of C and higher are counted for credit toward graduation. If students receive a grade lower than C in a (core) course required for graduation, they must repeat the course. If students receive a grade lower than C in an elective course, they need not repeat the specific course, but they must make up the hours.
- Grades are considered final and are rarely, if ever, changed for any reason other than calculation errors.
- Jones School students may not take courses pass/fail to count toward their degree requirements.
- Jones School students may audit course with departmental approval. The course will not count towards the MBA or appear on the transcript.

For Core Courses:

- No more than half of all grades assigned by an instructor may be an A- or above.
- A course GPA (combining multiple sections where necessary) between 3.30 and 3.50 should be used as a "target" for assigning grades.
- Instructors in multi-section courses should coordinate the assignment of final grades such that they reflect a consistent grading philosophy for the overall course.

For Elective Courses:

- Regardless of class size, instructors "target" the course GPA (combining multiple sections where necessary) to fall between 3.50 and 3.80.

- To the extent that such course exists, instructors in multi-section electives should coordinate the assignment of final grades such that grades reflect a consistent grading philosophy for the overall course.

GUIDELINES FOR APPEALING ACADEMIC DISMISSAL

The Process—A student who wishes to appeal a dismissal should address the following issues in a letter to the Academic Standards Committee. The student must send the letter to the chairman of the Academic Standards Committee. The following questions should be answered in the appeal letter.

1. What circumstances led to your academic performance last semester and to what degree were those circumstances beyond your control?
2. If your performance in a particular course(s) last semester was below par, describe any circumstances specific to that course that explain your performance.
3. Do you expect the circumstances that created the problems for you last semester to change next semester? If so, how?

You may include any other information that you deem relevant in your appeal letter

Timing—Timing is critical in the appeals process because classes start immediately after the grades are distributed in January. The student must inform the director of the MBA/E program (by email or written note) immediately of the intention to appeal. The appeal letter to the committee must be filed expediently, within or sooner than the first week of classes. If a student plans to appeal, he/she should attend classes in January without registering. It is important to keep up in his/her studies during the appeal process. If his/her appeal is accepted, the student may register later with a letter from the MBA program office.

Grades are considered final, and are rarely changed for any reason other than calculation errors.

Appeals—Appeals beyond the Academic Standards committee must go to the dean of the Jones Graduate School, who may seek guidance from the Dean's Advisory Council. All decisions rendered by the dean are final.

Confidentiality—The Family Educational Rights and Privacy Act of 1974 and amendments govern the records of actions related to appeals.

GRADE APPEAL PROCESS

The procedure below outlines the process by which a student may appeal a grade in a course.

1. The student should first pursue any grading question with the professor following whatever formal or informal process the professor has outlined for the course.
2. If the matter is not resolved in step 1 above, the student must file a written appeal to the professor and send a copy to the director of the MBA/E program. This written appeal must be filed no later than 45 days after the last day of finals for the module (mini-semester) in which the course was offered.
3. The professor must schedule a meeting with the student within two weeks of receiving the written appeal to further discuss the appeal with the student. Notice of the appeal time and date will be provided by the professor to the director of the MBA/E program.
4. If step 3 does not resolve the issue to the satisfaction of both parties, the student may appeal to the Dean's Advisory Committee by sending a written

notice describing the grounds for the appeal within 2 weeks of the date of the scheduled meeting in step 3.

5. The Dean's Advisory Committee will seek out information on the appeal from the professor and the student and, at its discretion, hold a hearing to further consider the matter. The decision of the Dean's Advisory Committee will be rendered within 6 weeks of receiving a written notice of appeal (step 4).
6. In the event that the protested grade is necessary for the student to graduate, an accelerated schedule will be followed.
7. All decisions rendered by the Dean's Advisory Committee are final.
8. The Family Educational Rights and Privacy Act of 1974 and amendments govern records of these actions.

ALP GRADE APPEAL POLICY FOR INDIVIDUAL STUDENT

The procedure below outlines the process by which an individual student may appeal a grade in the ALP course.

1. The student must send a letter of intent to appeal the grade to the director of ALP. This written appeal must be filed no later than 30 days after the last day of module 6. A copy of the letter must be sent to the director of the MBA program.
2. The director of ALP must schedule a meeting with the student and director of the MBA program by the end of module 1 during the following year to discuss the appeal with the student further. The purpose of the meeting is to review with the student the basis for the individual grade. The director of ALP will provide the meeting time to the director of the MBA program.
- 2a. Up until this time, all information relevant to the case is confidential. If the student desires to talk with the ALP faculty or ALP team members about the matter, this will require the student to waive confidentiality with respect to the matter of the downgrade status. The student must notify the director of ALP about his/her preference to waive confidentiality. Upon receiving the request to waive confidentiality from the student, the director of ALP will apprise all related parties that an appeal is underway, that they are not obligated to discuss the matter with the appealing student, and that their confidential peer evaluations have not been shared with the appealing student. The student must wait for permission from the director of ALP before contacting team members and/or faculty liaisons.
3. If step 2 does not resolve the issue to the satisfaction of both parties, the student may appeal to the director of ALP by sending a written notice describing the grounds for the appeal within 2 weeks of the date of the scheduled meeting in step 2. A copy of the letter must be sent to the director of the MBA program. The director of ALP will render a decision within 3 weeks of receiving the written notice.
4. If step 3 does not resolve the issue to the satisfaction of both parties, the student may appeal to the Dean's Advisory Committee by sending a written notice describing the grounds for the appeal within 2 weeks of the decision rendered by the director of ALP in step 3. A copy of the letter must be sent to the director of ALP and the director of the MBA program.
5. The Dean's Advisory Committee will seek out information on the appeal from the professor and the student and at its discretion hold a hearing to further consider the matter. The decision of the Dean's Advisory Committee will be rendered within 6 weeks of receiving a written notice of appeal (step 4).
6. All decisions rendered by the Dean's Advisory Committee are final.

7. In the event that the protested grade is necessary for the student to graduate, an accelerated schedule will be followed.
8. The Family Educational Rights and Privacy Act of 1974 and amendments govern records of these actions.

ALP GRADE APPEAL POLICY FOR STUDENT TEAM

The procedure below outlines the process by which an individual student may appeal a grade in the ALP course.

1. The student team must send a letter of intent to appeal the grade to all members of the faculty team. This written appeal must be filed no later than 30 days after the last day of module 6. All team members must sign the letter. A copy of the letter must be sent to the director of ALP and to the director of the MBA program.
2. The faculty team must schedule a meeting with the student team by the end of module 1 during the following year to further discuss the appeal with the student team. The professors will provide the meeting time to the director of ALP and to the director of the MBA program.
3. If the matter is not resolved in step 2 above, the student team must file a written appeal to the director of ALP within 2 weeks of the date of the scheduled meeting in step 2. All team members must sign the letter. The director of ALP must schedule a meeting with the student team within 2 weeks of receiving the written appeal to further discuss the appeal with the student team. The director of ALP will provide the meeting date to the director of the MBA program.
4. If step 3 does not resolve the issue to the satisfaction of both parties, the student team may appeal to the Dean's Advisory Committee by sending a written notice describing the grounds for the appeal within 2 weeks of the date of the scheduled meeting in step 3. All team members must sign the letter. A copy of the letter must be sent to the director of ALP and to the director of the MBA program.
5. The Dean's Advisory committee will seek out information on the appeal from the professors, the director of ALP, and the student team and, at its discretion, hold a hearing to further consider the matter. The decision of the Dean's Advisory Committee will be rendered within 6 weeks of receiving a written notice of appeal (step 4). A copy of the decision must be sent to the director of ALP and to the director of the MBA program.
6. All decisions rendered by the Dean's Advisory Committee are final.
7. In the event that the protested grade is necessary for the student to graduate, an accelerated schedule will be followed.
8. The Family Educational Rights and Privacy Act of 1974 and amendments govern records of these actions.

DROP/ADD POLICY AND PROCEDURES

Due to the unique module schedule by which the Jones School abides, MBA students have special procedures by which they follow to make schedule changes. The MBA Program Office has implemented an add/drop policy which allows students the opportunity to add/drop courses at various times throughout the semester. Below are the procedures for adding or dropping a course and students should contact the MBA Program Associate for assistance.

All schedule changes must be approved by the MBA Program Associate prior to the add/drop deadline (either via email or in person) before the student may make

schedule changes on Esther (<http://esther.rice.edu/>). All class rosters are updated in the MBA Program Office and sent to professors for enrollment counts and attendance records and students are responsible to communicate with the MBA Program Associate regarding all proposed schedule changes.

If student is taking a ONE CREDIT course:

1. A student may add/drop a class, including section changes for core courses, with permission from the MBA Program Associate during the first week of the module without penalty.
2. A student must attend the first class, and may not miss class during the first week.
3. A student may not add or drop a course after the first week of class (see add/drop deadlines below for the 2004-2005 academic year).

If student is taking a TWO CREDIT course:

1. A student may add/drop a class with permission from the MBA Program Associate, during the first two weeks of module in which the class begins without penalty.
2. A student must attend the first class and may not miss class during the first week.
3. A student may not add or drop a course after the second week of class.

If student is taking a THREE CREDIT course:

1. A student may add/drop a class with permission from the MBA Program Associate, during the first three weeks of module in which the class begins without penalty.
2. A student must attend the first class, and may not miss class during the first week.
3. A student may not add or drop a course after the third week of class.

2004-2005 ADD/DROP DEADLINES

Fall 2004

Add/Drop Period	Module(s)	Credits
August 23-30	1	1
August 23-September 7	1-2	2
August 23-September 13	1-3	3
September 27-October 4	2	1
September 27-October 11	2-3	2
November 8-November 15	3	1

Spring 2005

Add/Drop Period	Module(s)	Credits
January 12-19	4	1
January 12-26	4-5	2
January 12-February 2	4-6	3
February 21-February 28	5	1
February 21-March 7	5-6	2
March 28-April 4	6	1

All schedule changes must be submitted and approved by Christa VanDrie no later than 5 P.M.

Office: 210-2 Jones School Building

Phone: 713-348-6223

Email: cvandrie@rice.edu

INDEPENDENT STUDY

Minimum Hours Requirement—Each 1-unit credit for independent study should contain approximately as much time content as a 1-module course at JGSM, which is 12 hours of class time, plus an average of at least 24–36 outside-class hours, for a minimum total of 36–48 hours of work. Most independent study projects can probably be accommodated in a 1- or 2-unit independent study; 3-unit independent study projects should be less frequent. Occasionally, a group independent study project may arise, though most independent studies will be undertaken by individual students.

The number of credits for an independent study should be negotiated at the beginning of a project. Increases to the number of project credit hours after the project overview has been filed with the MBA program office must be approved by the Academic Standards Committee. The committee will rely on input from sponsoring faculty in making its decision about ex post credit increases. Requests to increase the number of project credit hours must be made before the end of the second week of classes in the module in which the project begins, except when a student is in their last semester, in which case such requests must be made before the end of the second week of the semester.

Restrictions—No student may take more than 3 credit hours of independent study during the course of the degree program without the approval of the Academic Committee. If an independent study is proposed that would cause a student to exceed the three credit limit, the Academic Standards Committee will select two faculty members, other than the faculty member who will supervise the project, within the area most closely related to the study's academic contact to review and approve the study. Independent study exceeding three credits in total should consider current policies restricting use of independent study as well as the incremental value of additional independent study in light of past independent studies. If the study does not align with any of the JGSM academic groups, the Academic Standards Committee will perform the review and make the final approval decision.

Independent study projects are for academic credit, not for hire. Students may not earn credit for paid research assistance.

Faculty Sponsorship—Independent study projects are normally sponsored only by full-time JGSM faculty. Students wishing for sponsorship by a part time faculty member must submit a project overview to the Academic Standards Committee and obtain the committee's approval, before the module(s) in which the project is to begin.

Common Requirements—The goal of independent study projects is to advance or deepen a student's knowledge or competency in a business discipline or activity.

To facilitate these goals, independent study projects generally fall into two broad categories: (1) directed reading and study resulting in a research paper, or (2) an experiential or hands-on project resulting in an outcome such as an empirical analysis or a webpage/site with an executive summary of the "deliverable."

While the content of individual independent study projects are at the discretion of a student and the sponsoring faculty member, JGSM would like to ensure relatively equal workloads per unit of independent study credit, and some common requirements between independent study projects. To that end, students and/or sponsoring faculty should:

1. Prepare and submit to the MBA program office an overview of the independent study project with number of project credits, anticipated final results and a broad timeline of anticipated project milestones.

2. Meet to discuss the project, after the initial agreement on the project scope, at least once every 2-3 weeks.
3. Prepare a final paper (in the case of directed reading and research projects), or complete a concrete deliverable (for example, a completed webpage, computer program, survey results, empirical analyses, etc.) together with an executive summary of the project (in the case of experiential projects).
4. File a copy of each student's final paper, or executive summary, with the MBA program office.

Applications—Independent Study Applications are available for interested students to pick up in the MBA Program Office. Complete and approved applications are due to the MBA Program Associate by the first week of the module in which the project will be completed. The student will be registered for MGMT 700 Independent study for the appropriate credit amount, only when the MBA Program Associate send the approved application information to the registrar for processing.

CLASS ATTENDANCE POLICY

Students are expected to be in class on the first day of each module. The faculty reserves the right to exclude students from their courses who do not show up on the first day. For special circumstances, see faculty and/or director of MBA program immediately.

WITHDRAWAL POLICY

A Jones School student may voluntarily withdraw from school at any time. Rice University applies a sliding scale to tuition and fees, so early action to withdraw saves money.

JONES SCHOOL STUDENT HANDBOOK

Generally, the Jones School adheres to the academic regulations of Rice University. However, the Jones School has unique policies and procedures that vary from the Office of Graduate Studies regarding, but not limited to, leave of absence, withdrawals and readmission, drop/add, academic discipline, dismissal, procedures for resolution of problems, and appeal of academic regulations. All Jones School students are responsible for adhering to policies and procedures listed in the *Jones School Student Handbook* given to students during pre-term. A copy of the handbook may also be obtained from the MBA program office.

FINANCIAL AID

Financial assistance by the Jones Graduate School is awarded only for a given semester or year. Continuation of assistance depends upon satisfactory academic performance, professional behavior, and availability of funds. Academic or disciplinary probation, suspension, or more than three grades below B- result in the removal of all forms of school financial assistance, whether scholarship, loan, or employment. Scholarships are awarded for a combination of need and academic merit.

See ACCO and MGMT in the Courses of Instruction section.

MANAGERIAL STUDIES

THE SCHOOL OF SOCIAL SCIENCES

PROGRAM DIRECTOR
Ronald Soligo

DEGREE OFFERED: BA

The major in managerial studies is an interdepartmental, nonprofessional program designed to provide undergraduates with an understanding of the environment in which businesses and other organizations exist today, and of some of the tools employed by management in the commitment of its financial and human resources. All students taking the managerial studies major must also complete at least one of the established departmental or interdepartmental majors, other than an area major. Managerial studies is not the equivalent of an undergraduate business major at other universities.

DEGREE REQUIREMENTS FOR BA IN MANAGERIAL STUDIES

For general university requirements, see Graduation Requirements (pages 14–15). For the BA degree, students majoring in managerial studies must complete the following 11 core courses in addition to satisfying all the requirements for their second departmental or interdepartmental major:

ACCO 305 *Introduction to Accounting*

ECON 211 *Principles of Economics I*
(microeconomics)

ECON 212 *Principles of Economics II*
(macroeconomics)

ECON 448 *Corporation Finance* or ENGI 303
Engineering Economics and Management

MANA 404 *Management Communications in a Consulting Simulation*

PSYC 101 *Introduction to Psychology*

PSYC 231 *Industrial and Organizational Psychology*

*STAT 280 *Elementary Applied Statistics*

**STAT 385 *Methods for Data Analysis and System Optimization*

1 course from the following:

ECON 355 *Financial Markets and Institutions*

ECON 435 *Industrial Organization*

ECON 436 *Regulation*

ECON 438 *Economics of the Law I*

POLI 335 *Political Environment of Business*

1 course from the following:

ACCO 406 *Management Accounting*

ECON 370 *Microeconomic Theory*

POLI 338 *Policy Analysis*

* Psychology and sociology majors may satisfy this requirement with PSYC 339/STAT 339 or SOCI 398, respectively. Students with a calculus background should take STAT 305, STAT 310/ECON 382, or STAT 331/ELEC 331.

* *or CAAM 378, STAT 410, 421, 486

MANA 404 is a capstone course that may not be taken until 8 of the 10 other required courses in the major have been completed.

Honors Program—To apply for admission to the honors program, students must have completed eight of the regular managerial studies courses and have a B+ (3.33) average in those courses. All applications must be approved by the Director of Managerial Studies.

A student in the honors program must take 2 additional courses from:

MANA 497/498 *Independent Research*

ECON 440 *Risk, Uncertainty, and Information*

ECON 445 *Managerial Economics*

ECON 449 *Basics of Financial Engineering*

STAT 486 *Methods in Computational Finance
I: Market Models*

STAT 421 *Methods in Computational Finance
II: Time Series*

MANA 497/498 are offered in collaboration with select faculty in the Jesse H. Jones Graduate School of Management. Admission to these courses must be approved by a participating faculty member. A list of participating faculty and their research interests is available from the director of Managerial Studies.

For more information, students should consult the program director in 268 Baker Hall.

See MANA in the Courses of Instruction section.

MATHEMATICS

THE WIESS SCHOOL OF NATURAL SCIENCES

CHAIR

Robin Forman

PROFESSORS

Michael Boshernitzan

Tim D. Cochran

Robert M. Hardt

John Hempel

Frank Jones

John C. Polking

Stephen W. Semmes

Richard A. Stong

William A. Veech

Michael Wolf

PROFESSOR EMERITUS

F Reese Harvey

ASSOCIATE PROFESSOR

Brendan Hassett

Zhiyong Gao

INSTRUCTORS

Pralay Chatterjee

Stefan Friedl

Taehee Kim

Christopher Rosmussen

Ilie D. Ugarcovici

DEGREES OFFERED: BA, MA, PHD

The program in mathematics provides undergraduates with a spectrum of choices, from nontheoretical treatments of calculus and courses in modern algebra, combinatorics, elementary number theory, and projective geometry to a broad variety of sophisticated mathematics, including real and complex analysis, differential geometry, abstract algebra, algebraic and geometric topology, algebraic geometry, and partial differential equations.

Faculty research interests range from differential geometry, ergodic theory, group representation, partial differential equations, and probability, to real analysis, mathematical physics, complex variables, algebraic geometry, combinatorics, geometric topology, and algebraic topology.

DEGREE REQUIREMENTS FOR BA IN MATHEMATICS

For general university requirements, see Graduation Requirements (pages 14-15). Students majoring in mathematics may choose between the regular math major and the double major. Regular math majors must complete:

- MATH 101 and 102 *Single Variable Calculus I and II*
- MATH 211 *Ordinary Differential Equations and Linear Algebra* and MATH 212 *Multivariable Calculus* or MATH 221 and 222 *Honors Calculus III and IV*
- At least 24 semester hours (8 courses) in departmental courses at the 300 level or above (in many instances, the math department will waive the 100- and 200-level courses for a math major)

The requirements for the double major are the same except that students may substitute approved mathematics-related courses for up to 9 of the 24 hours required at the 300 level or above.

Students receive advanced placement credit for MATH 101 by achieving a score of 4 or 5 on the AP AB-level test and for MATH 101 and 102 by achieving a score of 4 or 5 on the BC-level test. Students who have had calculus but have not taken the AP test may petition the department for a waiver of the calculus requirements. Entering students should enroll in the most advanced course commensurate

with their background; advice is available from the mathematics faculty during Orientation Week.

DEGREE REQUIREMENTS FOR MA AND PHD IN MATHEMATICS

Admission to graduate study in mathematics is granted to a limited number of students who have indicated an ability for advanced and original work. Normally, students take one or two years after the BA degree to obtain an MA degree, and they take four or five years to obtain a PhD. An MA is not a prerequisite for the PhD. For general university requirements, see Graduate Degrees (pages 57–58).

A number of graduate scholarships and fellowships are available, awarded on the basis of merit. As part of the graduate education in mathematics, students also engage in teaching or other instructional duties, generally for no more than 6 hours a week.

MA Program—Candidates for the MA in mathematics must:

- Complete with a grade of B or better a course of study approved by the department (students may transfer credits from another university only with the approval of both the department and the University Graduate Council)
- Perform satisfactorily on an examination in at least 1 approved foreign language (French, German, or Russian)
- Either complete all requirements for qualification as a candidate for the PhD (see below) or present, and provide an oral defense of, an original thesis acceptable to the department

PhD Program—Candidates for the PhD in mathematics must:

- Complete with a grade of B or better a course of study approved by the department (students may transfer credits from another university only with the approval of both the department and the University Graduate Council)
- Perform satisfactorily on qualifying examinations (see below)
- Perform satisfactorily on examinations in 1 approved foreign language (French, German, or Russian)
- Write an original thesis acceptable to the department
- Perform satisfactorily on a final oral examination on the thesis

Qualifying Examinations—The qualifying examinations in mathematics consist of the general examinations and the advanced oral examination.

To complete the **general examinations**, students must take 3 exams, 1 each in algebra, analysis, and topology. Exams are offered every August and January. First-year students may take any combination of exams at any time. After two semesters of study, students must attempt to pass all remaining exams at each offering. Students must perform satisfactorily on all 3 by the start of their fifth semester. Students may take an exam several times.

To complete the **advanced oral examination**, students must select a special field (e.g., homotopy theory, several complex variables, or group theory) and submit it to the department Graduate Committee for approval. The committee schedules an advanced examination in the selected field, normally six to nine months after the student completes the general examinations. While students failing the advanced examination may, with the approval of the committee, retake it on the same or possibly on a different topic, they generally are not allowed to take the advanced examination more than twice.

See **MATH** in the Courses of Instruction section.

MECHANICAL ENGINEERING AND MATERIALS SCIENCE

THE GEORGE R. BROWN SCHOOL OF ENGINEERING

CHAIR

Enrique V. Barrera

PROFESSORS

John E. Akin

Andrew R. Barron

Yildiz Bayazitoglu

Michael M. Carroll

Rex B. McLellan

Andrew J. Meade

Pol D. Spanos

Tayfun E. Tezduyar

James Tour

PROFESSORS EMERITI

Franz R. Brotzen

Alan J. Chapman

Angelo Miele

Ronald P. Nordgren

Chao-Cheng Wang

ASSOCIATE PROFESSORS

Fathi Ghorbel

Satish Nagarajaiah

Boris I. Yakobson

ASSISTANT PROFESSORS

Chad M. Landis

Marcia E. O'Malley

ADJUNCT PROFESSORS

John J. Bertin

Thomas J.R. Hughes

ADJUNCT ASSOCIATE PROFESSORS

Aladin Boriek

Keith Stein

ADJUNCT ASSISTANT PROFESSORS

Sarmed Adnan

Nazareth S. Bedrossian

James B. Dabney

VISITING ASSISTANT PROFESSORS

Catherine G. Ambrose

LECTURERS

Robert Cunningham

David M. McStravick

DEGREES OFFERED: BA, BSME, BSMS, MME, MMS, MS, PHD

Studies in mechanical engineering may lead to specialization in one of several areas, including mechanics, computational mechanics, stochastic mechanics, fluid dynamics, heat transfer, dynamics and control, robotics, biomedical systems, and aerospace sciences. Studies in materials science may lead to specialization in one of several areas, including nanotechnology, metals physics, statistical mechanics, metallic solid thermodynamics, materials chemistry, aspects of composites, coatings and thin films, and interface science.

The graduate program offers professional degrees in both materials science and engineering, which is based on undergraduate preparation in a number of related fields, and mechanical engineering, which permits specialization in the areas mentioned in the previous paragraph. Graduate students may also pursue research degrees. Faculty research areas are indicated in the previous paragraph. A joint MBA/Master of Engineering degree is available in conjunction with the Jesse H. Jones Graduate School of Management. Also, a combined MD and advanced research degree for research careers in medicine is available with Baylor College of Medicine.

The graduate program collaborates with other departments in its comprehensive educational and research activities. The Department of Computational and Applied Mathematics supports research in applied analysis and computational mathematics.

Work on expert systems and robotics is done in cooperation with the Departments of Electrical and Computer Engineering and Computer Science. Computer graphics research involves the cooperation of the Department of Computer Science and the School of Architecture. The campus-wide Rice Quantum Institute is also active in the research of electronic materials and other aspects of materials science. Finally, biomechanics and biomaterials research involves several institutions in the Texas Medical Center.

DEGREE REQUIREMENTS FOR BA, BSME IN MECHANICAL ENGINEERING OR BA, BSMS IN MATERIALS SCIENCE AND ENGINEERING

For general university requirements, see Graduation Requirements (pages 14–15). The BA program in either mechanical engineering or materials science and engineering is highly flexible, involves less technical content than the BS, and allows students greater freedom to pursue areas of interest outside of engineering.

The two BS programs prepare students for professional practice of engineering. During their senior year, mechanical engineering students in the BS program take courses in design application while completing a major design project, and materials science and engineering students in the BS program work on a design problem in an industrial setting. The BSME program is accredited by the Accreditation Board for Engineering and Technology (ABET). Departmental goals and objectives are available at <http://mems.rice.edu/undergraduate/goals.html>.

BSME Program—Lists of representative undergraduate courses and the usual order in which students take them are available from the department for either the BA or BS programs in both mechanical engineering and materials science and engineering. The BSME degree contains a core of required courses and selected electives from 1 of 6 specialization areas. The requirements (for a total of 131 hours) are:

Basic Mathematics and Science (26 hours)

CHEM 121 Chemistry
MATH 101 *Single Variable Calculus I*
MATH 102 *Single Variable Calculus II*
MATH 211 *Ordinary Differential Equations
and Linear Algebra*
MATH 212 *Multivariable Calculus*
MSCI 301 *Materials Science*
PHYS 101 *Mechanics*
PHYS 102 *Electricity and Magnetism*

Computational and Applied Mathematics (12 hours)

COMP 110 *Computation in Science
and Engineering*
CAAM 210 *Engineering Computation*
CAAM 335 *Matrix Analysis*
CAAM 336 *Differential Equations in Science
and Engineering*

Senior Design (7 hours)

MECH 407 *Mechanical Design Project I*
MECH 408 *Mechanical Design Project II*

Labs (3 hours)

MECH 331 *Mechanics Lab*
MECH 332 *Thermo/Fluids Lab*
MECH 431 *Senior Lab*

Mechanical Engineering (32 hours)

MECH 200 *Classical Thermodynamics*
MECH 211 *Engineering Mechanics*
MECH 311 *Mechanics-Deformable Solids*
MECH 340 *Industrial Process Lab*
MECH 343 *Modeling of Dynamic Systems*
MECH 371 *Fluid Mechanics I*
MECH 401 *Machine Design*
MECH 412 *Vibrations*
MECH 420 *Feedback Control of
Dynamic Systems*
MECH 481 *Heat Transfer*

Limited Electives: 3 hours in any 300-level or higher MATH, CAAM, STAT, or MECH course

Distribution Electives (24 hours)

Free Electives (15 hours)

Specialization Area Options—The specialization area can be 1 of the following 5 clusters. Students must take at least 2 of the following required cluster courses for their selected cluster and 2 from the departmental list of the suggested cluster elective courses, for a total of not less than 12 hours. The cluster advisors will maintain updated lists of electives in the department. The choices for the required cluster courses are:

1. Biomechanics

BIOE 372 *Intro Biomechanics*

MECH 380 *Tissue Mechanics*

2. Computational mechanics

MECH 417 *Finite Element Analysis*

MECH 454 *Finite Elements in Fluids*

3. Fluid mechanics and thermal science

MECH 372 *Fluid Mechanics, II*

MECH 471 *App. of Thermodynamics*

4. Solid Mechanics and Materials

CEVE 400 *Mechanics of Solids II*

MSCI 402 *Mech. Properties of Materials*

5. System dynamics and control

MECH 498 *Intro to Robotics*

MECH 435 *Electromechanical Systems*

or ELEC 243 *Intro to Electronics*

6. General mechanical engineering

Any 4 required courses listed above may be taken to define a general cluster.

BA in Mechanical Engineering Program—Students seeking the BA degree with a major in mechanical engineering must complete 120 hours with at least 66 semester hours in courses specified by the department along with 24 hours of university distribution electives and 30 hours of free electives. Lists of courses, including general university requirements and the usual order in which students take them are available from the department. The BA program mirrors the BSME program in the freshman and sophomore years with the exceptions that MECH 340 and MECH 331 are not required. Specific major requirements are completed in the junior and senior years along with electives. A summary appears below:

Freshman Year

Same as BS with 23 major and 9 elective hours for 32 hours.

Sophomore Year

Same as BS (except MECH 340 and 331 are not required) with 18 major and 15 elective hours for 33 hours.

Junior and Senior Years

25 major and 30 electives for 55 hours. The following courses are required in junior and senior years:

CAAM 335 *Matrix Analysis* (3)

CAAM 336 *Differential Equations in Science and Engineering* (3)

MECH 343 *Modeling of Dynamic Systems* (4)

MECH 371 *Fluid Mechanics I* (3)

MECH 401 *Machine Design* (3)

MECH 412 *Vibrations* (3)

MECH 420 *Feedback Control of Dynamic Systems* (3)

MECH 481 *Heat Transfer* (3)

BA in Materials Science and Engineering Program—Students seeking the BA degree with a major in materials science and engineering must complete at least 52 hours in courses specified by the department plus additional hours for a total of 120 hours at graduation.

BSMS Program—Students seeking the BSMS must complete at least 91 semester hours in courses specified by the department within the total requirements of 134 hours. Basic departmental course requirements for the BSMS are as follows:

CHEM 121–122 *General Chemistry*
 MATH 101 and 102 *Single Variable Calculus I and II*
 MATH 211 *Ordinary Differential Equations and Linear Algebra*
 MATH 212 *Multivariable Calculus*
 MECH 211 *Engineering Mechanics*
 MSCI 301 *Materials Science*
 PHYS 101 *Mechanics*
 PHYS 102 *Electricity and Magnetism*

Specific requirements

CAAM 210 *Introduction to Engineering Computation*
 CAAM 335 *Matrix Analysis*
 CEVE 300 *Mechanics of Solids*
 ELEC 241 *Fundamentals of Electrical Engineering I* (or ELEC 243 *Introduction to Electronics*)
 MSCI 301 *Materials Science*
 MSCI 303 *Materials Science Junior Lab*
 MSCI 311 *Introduction to Design*
 MSCI 401 *Thermodynamics and Transport Phenomena in Materials Science*

MSCI 402 *Mechanical Properties of Materials*
 MSCI 404 *Materials Engineering and Design*
 MSCI 406 *Physical Properties of Solids* (or MSCI 415 *Ceramics and Glasses*)
 MSCI 411 *Metallography and Phase Relations* (or MSCI 415 *Ceramics and Glasses*)
 MSCI 500/501 *Materials Science Seminar*
 MSCI 535 *Crystallography and Diffraction*
 MSCI 537 *Materials Science Senior Lab*
 MSCI 594 *Properties of Polymers*

1 course from the following

PHYS 201 *Waves and Optics*
 CHEM 211 *Organic Chemistry*
 CHEM 311 *Physical Chemistry*

Electives

1 approved science elective (at the 200 level or higher)
 1 approved engineering science elective (not MSCI)
 1 approved technical elective

DEGREE REQUIREMENTS FOR MME, MMS, MS, AND PHD IN MECHANICAL ENGINEERING OR MATERIALS SCIENCE AND ENGINEERING

Professional Degree Programs—The professional degrees offered by this department, the Master of Mechanical Engineering (MME) and the Master of Materials Science (MMS), involve a fifth year of specialized study, which is integrated with the four undergraduate years leading to either the BA or the BS degree in the same areas of interest. The professional degree programs are open to students who have shown academic excellence in their undergraduate studies.

For general university requirements, see Graduate Degrees (pages 57–58). For both the MME and MMS degrees, students must complete 30 semester hours of course work. Lists of suggested courses are available from the department. Students should develop a specific plan of study based on their particular interests.

Research Degree Programs—The programs leading to the MS and PhD degrees are open to students who have demonstrated outstanding performance in their undergraduate studies. The granting of a graduate research degree presupposes academic work of superior quality and a demonstrated ability to do original research.

For general university requirements, see Graduate Degrees (pages 57–58). Course requirements for the research degrees vary, depending on the extent of individual undergraduate preparation as well as each student's performance in graduate courses and on qualifying examinations. For both the MS and PhD degrees, students must present a thesis that comprises an original contribution to knowledge and defend it in a public oral examination.

See MECH and MSCI in the Courses of Instruction section.

MEDIEVAL STUDIES

THE SCHOOL OF HUMANITIES

DIRECTOR AND ADVISER

Eva Haverkamp

PROFESSORS

Jane Chance

Gilbert Morris Cuthbertson

Michael Maas

Donald Ray Morrison

Deborah Nelson-Campbell

ASSOCIATE PROFESSORS

Linda E. Neagley

Nanxiu Qian

Carol E. Quillen

Paula Sanders

Sarah Westphal

ASSISTANT PROFESSORS

David Cook

Eva Haverkamp

Scott McGill

LECTURER AND PLAYWRIGHT IN RESIDENCE

E. Douglas Mitchell

DEGREE OFFERED: BA

This interdisciplinary major enables students to compare medieval cultures, noting both their differences and their common traditions, in the period between 500 and 1500 AD. The program combines a broad background in various aspects of medieval culture with more specialized study in a selected field. These fields of emphasis include art history, history, medieval literature (English, French, or Latin), music, philosophy, or religion.

DEGREE REQUIREMENTS FOR BA IN MEDIEVAL STUDIES

For general university requirements, see Graduation Requirements in this publication. Students majoring in medieval studies must complete at least 30 semester hours (10 courses); the minimum for double majors is 30 hours. All majors must complete five (5) of these medieval studies courses at the 300 or 400 level.

Required and recommended courses include the following:

A minimum of 30 semester hours (10 semester courses), of which at least five courses must be at the 300/400 level. Double majors must complete a minimum of 24 semester hours.

One course in medieval literature or medieval art or medieval music

Recommended Courses:

- MDST 316 Chaucer
- MDST 317 Arthurian Literature
- MDST 368 Mythologies
- MDST 414 Literature and Culture of the Middle Ages: Saints and Sinners
- MDST 425 Courtly Love in Medieval France
- MDST 330 Early Medieval Art
- MDST 331 Gothic Art and Architecture in Northern Europe, 1140-1300
- MDST 332 Late Gothic Art and Architecture in Northern Europe, 1300-1500
- MDST 222 Medieval and Renaissance Eras
- MDST 429 Music in the Middle Ages

One of the following courses

- MDST 201 History of Philosophy I
- MDST 257/357 Jews and Christians in Medieval Europe
- MDST 382 Classical Islamic Culture

Two semesters of foreign language study, determined in consultation with the medieval studies advisor.

Three courses (at least two at the 300 or 400 level) in the student's chosen field of emphasis—one of these may be a directed reading course

Recommended Courses:

- MDST 315 Introduction to Medieval Culture

For single majors, 3 additional courses in the medieval period, one of which may be a senior thesis (1 semester) on a topic in the student's field of emphasis; for double majors, 1 additional course in the medieval period.

Students work out their programs of study in consultation with the program director. Those contemplating graduate work in medieval studies should study at least one foreign language in some depth (as most graduate schools require a reading knowledge or French and German for the PhD)

Students may select from among the following to fulfill the course requirements for the major in medieval studies.

Please note that not all courses listed below will be offered during the academic year. For a current list of courses that will be offered in fall 2004 and spring 2005, please visit the Medieval Studies web site at <http://medieval.rice.edu>.

Classical Studies

MDST 101 *Elementary Latin I*

MDST 102 *Elementary Latin II*

MDST 211 *Intermediate Latin I*

MDST 212 *Intermediate Latin II*

English

MDST 300 *Medieval Women Writers*

MDST 310 *Dante in Translation*

MDST 311 *Old English*

MDST 315 *Introduction to Medieval Culture*

MDST 316 *Chaucer*

MDST 317 *Arthurian Literature*

MDST 318 *J. R. R. Tolkien*

MDST 368 *Mythologies*

French Studies

MDST 410 *The Literary and Historical Image of the Medieval Woman*

MDST 414 *Literature and Culture of the Middle Ages: Saints and Sinners*

MDST 425 *Courtly Love in Medieval France*

MDST 436 *Literature and Culture of the Middle Ages: King Arthur*

German Studies

MDST 126 *Freshman Seminar: The Legend of King Arthur in the Middle Ages*

MDST 330 *Mapping German Culture: Courtship, Love and Marriage in the Age of Chivalry*

History of Art

MDST 108 *Art in Context: Late Medieval and Renaissance Culture*

MDST 111 *Introduction to the History of*

Western Art I: Prehistoric to Gothic

MDST 238 *Special Topics in Medieval Art*

MDST 239 *Independent Study in Medieval Art*

MDST 330 *Early Medieval Art*

MDST 331 *Gothic Art and Architecture in Northern Europe, 1140–1300*

The Age of Cathedrals

MDST 332 *Late Gothic Art & Architecture in Northern Europe, 1300–1500*

MDST 440 *Jan van Eyck: Problems of Interpretation*

MDST 457 *Bosch and Bruegel*

History

MDST 168 *The World of Arabian Nights*

MDST 223 *Medieval Empires*

MDST 257 *Jews and Christians in Medieval Europe*

MDST 281 *Pre-Modern Middle East History: The Middle East from the Prophet Muhammad*

to Muhammad Ali

- MDST 303 *Undergraduate Independent Reading*
- MDST 304 *Undergraduate Independent Reading*
- MDST 308 *The World of Late Antiquity*
- MDST 321 *Directed Readings in Medieval History*
- MDST 322 *Directed Readings in Medieval History*
- MDST 323 *Medieval Empires* (enriched version)
- MDST 345 *Humanism and Expansion*
- MDST 357 *Jews and Christians in Medieval Europe* (enriched version)
- MDST 358 *European Intellectual History from Augustine to Descartes*
- MDST 382 *Classical Islamic Cultures*
- MDST 384 *The Crusades: Holy War in Medieval Christendom and Islam*
- MDST 387 *Life on the Nile*
- MDST 438 *Women and Gender in Medieval Islamic Societies*
- MDST 444 *Memory and Commemoration in the Middle Ages*
- MDST 446 *Jewish and Christian Communities in the Middle Ages*

- MDST 447 *The Age of the Crusades*
- MDST 488 *Topics in Medieval History*

Linguistics

- MDST 311 *Old English*

Music

- MDST 222 *Medieval and Renaissance Eras*
- MDST 429 *Music of the Middle Ages*
- MDST 441 *Hildegard of Bingen*
- MDST 456 *Collegium*
- MDST 486 *Illuminated Music Manuscripts*

Philosophy

- MDST 201 *History of Philosophy I*
- MDST 301 *Ancient and Medieval Philosophy*
- MDST 481 *Seminar in Ancient and Medieval Philosophy*

Religious Studies

- RELI 443 *Maimonides' Guide for the Perplexed*

See MDST in the Courses of Instruction section.

MILITARY SCIENCE

CHAIR AND PROFESSOR

Lieutenant Colonel Brian Whalen

ASSISTANT PROFESSORS

Sergeant First Class Tol Avery

Captain Dexter Caston

Captain Renee Russo

Master Sergeant Thomas Braaten

DEGREES OFFERED: NONE

The goal of the U.S. Army ROTC program is to develop technically competent, physically fit, and highly motivated men and women for positions of responsibility as commissioned officers in the active army, the army reserve, and the National Guard. Upon completion of the curriculum, students will have an understanding of the fundamental concepts and principles of the military as an art and as a science. The leadership and managerial experience gained through ROTC provides great benefit for students in both their civilian endeavors and in their military careers.

DEGREE REQUIREMENTS

Rice does not offer a bachelor's in Military Science. However, interested students can obtain a degree in any of the other programs offered by Rice, with a minor in Military Science obtained by attending courses at the University of Houston. The financial aid available to a ROTC student may be used for Rice courses as well as the University of Houston ROTC courses.

For general university requirements, see Graduation Requirements (pages 14-15). For requirements for a specific degree program, see the pages for that degree program. Further details on ROTC programs at Rice are available on page 27. For more information on the Army ROTC program in particular, contact the military science department at the University of Houston by calling 713-743-3875.

Statutory Authority—General statutory authority for establishment and operation of the ROTC program, including the scholarship program, is contained in Title 10, United States Code, Chapter 103 (Sec. 2102-2111). Specific rules and procedures are found in U.S. Army Regulation 145-1.

Course Credit. ROTC classes may be taken for elective credit toward any degree plan at the University of Houston or Rice University. Freshman- and sophomore-level classes are open to all students, regardless of age or physical condition. *No military obligation is incurred as a result of enrollment in these courses.* Junior- and senior-level courses are more restrictive and do require a military obligation. ROTC scholarship students also incur a military obligation.

Four-Year Program—The four-year program is divided into two courses: the basic course, which is normally attended by students during their freshman and sophomore years, and the advanced course, attended during the junior and senior years. Advanced course students attend a six-week advanced camp in Fort Lewis, Washington, normally between their junior and senior years.

The Basic Course—The basic course consists of four semesters of military science, which include MILI 121, MILI 122, MILI 201, and MILI 202. These freshman- and sophomore-level classes are open to all students without obligation.

The Advanced Course—Students entering the advanced course must enter into a contract to pursue and accept a commission in the active Army, the Army Reserve,

or the National Guard. To be considered for contracting into the advanced course, the student must be a full-time student in a course of instruction that leads to a degree in a recognized academic field, have a minimum of two years of academic work remaining in a curriculum leading to a baccalaureate or advanced degree, be under age 30 when commissioned, and pass a physical examination.

Two-Year Program—The two-year program is designed for students who did not take the basic course but are otherwise eligible to enroll in the advanced course. This program allows students completing their sophomore year to attend a five-week Leader's Training Course during June and July at Fort Knox, Kentucky, in lieu of taking the first two years of ROTC. *There is no military obligation for attending Leader's Training Course.* The army provides transportation, room, and board. Students are **paid** approximately \$500 for the four-week period.

Laboratory Requirements—A military science laboratory is required for students enrolling in MILI 121, MILI 122, MILI 201, MILI 202, MILI 301, MILI 302, MILI 401, and MILI 402. This laboratory provides opportunities for marksmanship training, rappelling, drill and ceremonies, communications training, and other activities.

Veterans—Veterans who have served on active duty or in the army reserve or National Guard are also eligible for the ROTC program. Although veterans are not required to take the basic course, they are encouraged to do so. All students, including veterans, must have a minimum of 54 credit hours prior to enrolling in the advanced course.

National Guard and Army Reserve Members—Students enrolled in ROTC may also be members of the Army Reserve/National Guard. Through the Simultaneous Membership Program (SMP), those students enrolled in the advanced course will be placed in a leadership position as a cadet and will receive pay and entitlements from the National Guard or Army Reserve in the pay grade of Sergeant (E-5).

Financial Assistance—The United States Army offers, on a competitive nationwide basis, four-, three-, and two-year scholarships. The scholarships cover up to \$20,000 of tuition. Recipients also receive benefits for educational fees (to include lab fees), a book allowance, and a subsistence allowance of \$350 per month. Applicants must be U.S. citizens and must be under age 27 on the anticipated graduation date. Applications are available from the military science department. Veteran applicants can extend the age limit up to a maximum of three years, based on prior active duty service.

Other Financial Aid—All students enrolled in the advanced course will receive a subsistence allowance of \$350 per month junior year and \$400 per month senior year. For more information, contact the military science department. GI Bill recipients still retain benefits.

Tuition—Members of the Army or the Army Reserve, National Guard, Texas State Guard, or other reserve forces may be exempted from the nonresident tuition fee and other fees and charges.

Special Training—Basic and advanced-course students may volunteer for and may attend the U.S. Army Airborne and Air Assault courses during June, July, and August. Cadet Troop Leadership training positions are also available to advanced-course cadets during the summer months.

Miscellaneous—Cadets in the advanced course are paid an allowance of \$350 per month during the junior school year and \$400 per month during senior year. Military textbooks and uniforms are furnished to all cadets.

The Corps of Cadets sponsors an annual military ball in addition to other social events throughout the school year. The Department of Military Science sponsors extracurricular activities such as the University of Houston Color Guard and the Ranger Challenge Team.

Minor in Military Science—To qualify for a minor in military science, students must complete a minimum of 18 semester hours of course work, of which 12 must be advanced. Nine semester hours must be completed in residence, of which 6 must be advanced. Students must also attend advanced camp. Students must attain a 3.00 grade point average or higher in military science courses attempted at this university. Students may receive credit for 100- and 200-level courses based on prior military training, completion of ROTC Basic Camp, completion of JROTC training, or completion of one year at a service academy.

See MILI in the Courses of Instruction section (these are University of Houston listings).

MUSIC

THE SHEPHERD SCHOOL OF MUSIC

DEAN

Robert Yekovich

PROFESSORS

Robert Atherholt

Richard Brown

Leone Buyse

Marcia J. Citron

James Dunham

Paul V. H. Ellison

Joyce Farwell

Norman Fischer

Kenneth Goldsmith

Arthur Gottschalk

Lynn Harrell

Clyde Holloway

Benjamin C. Kamins

Kathleen Kaun

Stephen King

Richard Lavenda

Sergiu Luca

Honey Meconi

Jon Kimura Parker

Larry Rachleff

Robert Roux

Marie Speziale

William Ver Meulen

Kathleen Winkler

PROFESSOR EMERITUS

Raphael Fliegel

ASSOCIATE PROFESSORS

Walter B. Bailey

Thomas I. Jaber

Pierre Jalbert

David E. Kirk

Thomas LeGrand

Paula Page

Timothy Pitts

Karen Ritscher

David L. Waters

Michael Webster

ASSISTANT PROFESSORS

Karim Al-Zand

Gregory Barnett

Anthony K. Brandt

Shih-Hui Chen

David Ferris

Kurt Stallmann

INSTRUCTOR

Joan DerHovespian

ARTIST TEACHERS

Brian Connelly

Jan de Chambrier

Debra Dickinson

Jeanne Kierman Fischer

Michael Franciosi

Christopher French

Hans Graf

Janet Rarick

C. Dean Shank, Jr.

LECTURERS

Nancy Gisbrecht Bailey

Susan Dunn

Phillip Kloeckner

ADJUNCT LECTURERS

David Malone

Robert Simpson

C. Richard Stasney

Pieter A. Visser

DEGREES OFFERED: BA, BMUS, BMUS/MMUS, MMUS, DMA

At the undergraduate level, the Shepherd School of Music offers both professional training and a broad liberal arts curriculum. Degree programs include a BA degree in music and a BMus degree in performance, composition, music history, and music theory. Acceptance into a five-year honors program leads to the simultaneous awarding of the BMus and MMus degrees.

At the graduate level, the school offers professional music training for qualified students who concentrate on music composition, performance, or research that is supported by lab or performing ensembles. This training includes theory and history seminars. Advanced degree programs include a MMus degree in composition, choral and instrumental conducting, historical musicology, performance, and music theory and a DMA degree in composition and selected areas of performance.

REQUIREMENTS FOR ALL MUSIC MAJORS

For general university requirements, see Graduation Requirements (pages 14-15). All students majoring in music must participate in core music, applied music, and other required music courses, as well as in chamber music and large ensembles, plus electives. They are entitled to one hour of private lessons each week of each semester they are enrolled as a music major; private or group lessons beyond this may result in additional fees. Students in the BA program who wish to continue taking private lessons beyond the required four semesters of instrumental or vocal study must obtain permission from the dean of the Shepherd School.

Examinations—At the end of each semester, a jury examination in applied music is given over the material studied during the semester. (All degree candidates except BA students must demonstrate keyboard proficiency in an examination. If students have little or no knowledge of the keyboard, they should enroll in secondary piano at the beginning of their first semester and continue study until they can meet the examination requirements.)

Performance—Students are expected to perform frequently during their residence at Rice. Performance majors must present at least 2 full recitals. Composition and conducting students should present recitals as specified by their degree programs. Students are expected to attend both faculty and student recitals. In addition, all music majors must participate in the school's conducted ensembles as assigned.

DEGREE REQUIREMENTS FOR BA IN MUSIC, BMUS, AND BMUS/MMUS

Admission—An audition, either in person or on tape, is required of each undergraduate applicant. The Shepherd School faculty and the university's Committee on Admission jointly determine admission, the latter basing its evaluation upon successful academic achievement and other standards of college admission. Transfer applicants from other colleges, conservatories, and universities must also provide an audition, personal or taped, and take placement exams in both music history and music theory. Once admitted, their prior preparation in music is assessed, which may reduce the required period of study at Rice.

BA and BMus Program—For general university requirements, see Graduation Requirements (pages 14-15).

For either bachelor's degree, students majoring in music must have a total of at least 120 semester hours at graduation. The complete curriculum for each major in music is available in the *Shepherd School Student Handbook* or in the undergraduate music office on the second floor of Alice Pratt Brown Hall. While the number of required hours vary according to major area, all music students must take the following core courses (those in the BA program are not required to take MUSI 331, 332 and 431).

- *Music Theory*: MUSI 211, 212, 311, 312, and a theory elective chosen from MUSI 416, 512, 513, or 613.
- *Music History*: MUSI 222, 321, 322, and 421.
- *Aural Skills and Performance Techniques*: MUSI 231, 232, 331, 332, and 431.

BMus/MMus Honors Program—The same general university requirements apply, but students seeking the combined BMus/MMus degree must complete a total of at least 150 semester hours by graduation. The number of required hours varies according to major area.

The first five semesters of course work in this program parallel the core curriculum of the bachelor's degrees. The sixth semester is a transitional semester during which students qualify for admission to the combined program. For further information, including application procedures, see the *Shepherd School Student Handbook*.

DEGREE REQUIREMENTS FOR MMUS AND DMA IN MUSIC

Admission—For instrumental, voice, and conducting applicants, an audition is required. Composition majors must submit portfolios, and musicology and theory majors must provide samples of their written work. The Graduate Record Examination (GRE) is required of graduate applicants in musicology and theory. Musicology applicants must also complete the advanced music tests.

Requirements—For general university requirements, see Graduate Degrees (pages 57–58). For the MMus degree, candidates must complete at least two semesters of full-time study at Rice. Semester hour minimums for the MMus degree vary according to major area. For the DMA, candidates must complete a total of 90 hours beyond the bachelor's degree, attending Rice full time for at least four semesters after receiving their MMus degree.

Thesis—A thesis is required of both music history and music theory majors. In lieu of a thesis, composition majors must produce an original work of extended scope, and conducting majors must present an extended composition or project.

ACADEMIC STANDARDS

Curriculum and Degree Requirements—Further information on curricular requirements for all majors and degree programs is available from The Shepherd School of Music.

Grading Policy—All music students must achieve at least a B- in course work in their major applied area. Students who receive a C+ or lower in their major applied area are placed on music probation. Music probation signifies that the work of the student has been sufficiently unsatisfactory to preclude graduation unless marked improvement is achieved promptly. While on probation, they may not be absent from class except for extraordinary reasons, and they may not represent the school in any public function that is not directly part of a degree program. After receiving a second C+ or lower in their major area, whether in consecutive semesters or not, students are discontinued as music majors.

Leaves of Absence and Voluntary Withdrawal—Music majors must obtain permission in writing from the dean of the Shepherd School before requesting a leave of absence from the university. Requests must be in the dean's office before the first day of classes in the semester for which leave is requested.

Music majors taking voluntary withdrawal from the university are not guaranteed readmission into the Shepherd School and may be asked to reapply/reaudition. Students should explain the reasons for their withdrawal to the dean before leaving campus.

OTHER MUSICAL OPPORTUNITIES

For Nonmajors—Students who are not music majors may take the following courses designed for the general student (other music courses require the permission of the instructor and the approval of the dean of the Shepherd School).

- MUSI 117/118 *Fundamentals of Music I and II*
- MUSI 307 *Composition for Nonmajors*
- MUSI 317/318 *Theory for Nonmajors I and II*

- MUSI 327/328 *Music Literature for Nonmajors I and II*
- MUSI 334/335 *Campanile Orchestra and Rice Chorale*
- MUSI 141-197 for individual instruction in all instruments
- MUSI 340 *Concert Band*
- MUSI 342 *Jazz Ensemble*
- MUSI 345 *Jazz Improvisation*
- MUSI 415 *Band Arranging*

Lectures and Performances—A visiting lecturer series, a professional concert series, and numerous distinguished visiting musicians contribute to the Shepherd School environment. The Houston Symphony Orchestra, Symphony Chorus, Houston Grand Opera, Texas Opera Theater, Houston Ballet, Houston Oratorio Society, Da Camera, Context, and Houston Friends of Music, as well as the activities of other institutions of higher learning in the area, also provide exceptional opportunities for students to enjoy a wide spectrum of music.

See MUSI in the Courses of Instruction section.

NANOSCALE PHYSICS

THE WIESS SCHOOL OF NATURAL SCIENCES

DIRECTOR

F Barry Dunning

Professors

Andrew R. Barron

Neal F. Lane

ASSOCIATE PROFESSOR

Vicki L. Colvin

ASSISTANT PROFESSORS

Jason H. Hafner

Thomas C. Killian

Douglas A. Natelson

Frank R. Toffoletto

Faculty Fellow

Kristen M. Kulinowski

DEGREES OFFERED: MS

Rice University introduced a professional master's degree in Nanoscale Physics in fall 2002. This program combines a strong component in quantum theory, which governs the behavior of systems at the nanoscale, with the study of practical nano- and mesoscale devices. The program provides the student with the knowledge required to successfully navigate the emerging field of nanotechnology. New courses cover cutting-edge areas such as quantum behavior of nanostructures, quantum nanotechnology, nanoscale imaging, and the fabrication of nanostructures. In addition, a year-long course in methods of experimental physics ensures that students obtain the advanced practical skills valuable to industry.

The Nanoscale Physics degree is one of three tracks in the new Professional Master's Program at Rice housed in the Wiess School of Natural Sciences. These master's degrees are designed for students seeking to gain further scientific core expertise coupled with enhanced management and communication skills. These degrees instill a level of scholastic proficiency that exceeds that of the bachelor's level and creates the cross-functional aptitudes needed in modern industry. This will allow students to move more easily into management careers in consulting or research and development, design, and marketing of new science-based products.

DEGREE REQUIREMENTS FOR THE MS IN NANOSCALE PHYSICS

In addition to the core science courses, students are required to complete a three- to six-month internship and take a set of cohort courses focusing on business and communication. At the conclusion of the internship, students must present a summary of the internship project in both oral and written form as part of the Professional Master's Seminar.

Part-time students who already work in their area of study may fulfill the internship requirement by working on an approved project with their current employer. Certain course requirements may be waived based upon prior graduate coursework or industrial experience. For general university requirements for graduate study, see pages 62–63, and see also Professional Degrees, page 58.

ADMISSION

Admission to graduate study in nanoscale physics is open to qualified students holding a bachelor's degree in physics, electrical engineering, or a related field that includes intermediate level work in mathematics, electrodynamics, and quantum physics. Department faculty evaluate the previous academic record and credentials of each applicant individually.

Science core courses:

PHYS 533 *Nanostructures and Nanotechnology I* (F)

PHYS 539 *Characterization and Fabrication at the Nanoscale* (F)

PHYS 537 *Methods of Experimental Physics I* (F)

PHYS 534 *Nanostructures and Nanotechnology II* (S)

PHYS 538 *Methods of Experimental Physics II* (S)

PHYS 416 *Computational Physics* (S)

Cobort courses:

MGMT 750 *Management in Science and Engineering* (F)

NSCI 501 *Professional Master's Seminar* (F, S)
[required for two semesters]

NSCI 511 *Science Policy and Ethics* (S)

INTERNSHIP

An internship under the guidance of a host company, government agency, or national laboratory. A summary of the internship project is required in both oral and written form as part of the Professional Master's Seminar.

ELECTIVE COURSES

Note: Each of these electives is not offered every year, and some courses may have prerequisites or require instructor permission.

Students will choose four elective courses, two of which must be science or engineering 500 level or above. Recommended courses include, but are not limited to, the following:

CAAM 378 *Introduction to Operations Research* (F)

CHEM 533 *Nanostructure and Nanotechnology*

CHEM 547 *Supramolecular Chemistry* (F)

CHEM 630 *Molecular Spectroscopy and Group Theory* (F)

ELEC 561 *Topics in Semiconductor Manufacturing* (S)

ELEC 562 *Submicrometer and Nanometer Device Technology* (S)

ELEC 568 *Laser Spectroscopy* (F)

ELEC 603 *Nano-Optics and Nanophotonics* (F)

ELEC 645 *Thin Films* (F)

ELEC 685 *Fundamentals of Medical Imaging* (F)

ENGI 303 *Engineering Economics and Management* (S)

MGMT 617 *Managerial Decision Making* (S)

MGMT 636 *Systems Analysis and Database Design*

MGMT 661 *International Business Law* (F)

MGMT 674 *Production and Operations Management* (F)

MGMT 676 *Project Management/Project Finance* (S)

MGMT 721 *General Business Law* (S)

MGMT 751 *New Venture Creation in Science and Engineering* (S)

PHYS 569 *Ultrafast Optical Phenomena* (S)

NAVAL SCIENCE

CHAIR

Larry J. Watson

ASSOCIATE PROFESSOR

Antonio J. Cerrillo

ASSISTANT PROFESSORS

Matthew M. Mazat

Geoff McKeel

James R. Neal

DEGREES OFFERED: NONE

Students enroll in the Navy Reserve Officers' Training Corps (ROTC) program as scholarship or nonscholarship students. Sophomores may apply for the optional two-year program. The Department of Naval Science is administered by a senior U.S. Navy officer, assisted by officers and enlisted personnel of the U.S. Navy and Marine Corps.

DEGREE REQUIREMENTS

Rice does not offer a bachelor's in Naval Science. However, interested students can obtain a degree in any of the other programs offered by Rice, with a minor in Naval Science. Financial aid may be available to a Navy ROTC student.

For university requirements for a specific degree, see Graduation Requirements (pages 14-15) and the section pertaining to that degree. For further details on ROTC programs at Rice, see page 27. Program requirements differ slightly depending on the student's scholarship status.

Scholarship Navy ROTC students are appointed midshipmen, U.S. Naval Reserve, on a nationwide competitive basis. They receive retainer pay of \$250-\$400 per month for a maximum of four academic years, with all tuition, fees, and equipment paid for by the government. Additionally, students receive \$300 per semester for books. Midshipmen must complete the prescribed naval science courses and participate in drills and three summer cruises. After graduating with a bachelor's or graduate degree, they accept a commission as an ensign in the U.S. Navy or as a second lieutenant in the U.S. Marine Corps.

Nonscholarship Navy ROTC students enter into a mutual contract with the Secretary of the Navy to take naval science courses and to participate in drills and one summer training cruise. On a competitive basis, students may apply to continue in the Navy ROTC program through their junior and senior years. The U.S. Navy pays these continuing students \$300-\$400 per month during their junior and senior years, offering them a commission in the U.S. Navy or Marine Corps upon graduation. The program chair may recommend nonscholarship students, on a local competitive basis, for scholarship status.

Two-Year Program Option—In their sophomore year (junior year for five-year Rice students), students may apply for the two-year Navy ROTC program, competing nationwide for available scholarships. If selected, they attend the six-week Naval Science Institute (NSI) at Newport, Rhode Island, during July and August. NSI provides students with course material and training normally covered during the

first two years of the regular Navy ROTC program. Successful completion of NSI qualifies students for enrollment in the advanced Navy ROTC program on an equal footing with the four-year students. Usually about 15 percent of the nonscholarship students finishing NSI are offered two-year Navy ROTC scholarships. Additional scholarships occasionally may be awarded to others upon the recommendation of the program chair.

U.S. Marine Corps Program—Navy ROTC students, either scholarship or non-scholarship, may apply for the U.S. Marine Corps program. Students selected for that program are referred to as “Marine Corps option students” and attend separate classes under a U.S. Marine officer instructor during their junior and senior years.

See NAVA in the Courses of Instruction section.

NEUROSCIENCES

THE SCHOOL OF SOCIAL SCIENCES

DIRECTOR

James R. Pomerantz

PROFESSORS

Steven J. Cox

John W. Clark

James L. Dannemiller

Raymon M. Glantz

Don H. Johnson

Randi C. Martin

James R. Pomerantz

Devika Subramanian

Moshe Y. Vardi

Rick K. Wilson

PROFESSOR EMERITUS

Sydney M. Lamb

ASSOCIATE PROFESSORS

Tony Ro

Michael Stern

ASSISTANT PROFESSORS

Darcy Burgund

Denise Chen

Mary E. Lane

Geoffrey F. Potts

Robert Raphael

DEGREES OFFERED: NONE

In the 1999-2000 academic year, Rice University began offering a new set of courses in the area of Neuroscience to supplement a set of courses already offered by various departments in closely allied areas. These courses, which carry the designation NEUR, are offered in part by faculty associated with the Division of Neurosciences at Baylor College of Medicine and in part by faculty at Rice in several different departments (including biochemistry and cell biology; computer science, electrical and computer engineering, linguistics, and psychology.) They are intended primarily for Rice graduate students but, with permission, are available to advanced undergraduates. Some of these classes are taught at the nearby Baylor campus, and some are taught according to Baylor's academic calendar, which is different from Rice's. For further information on what courses are available and for instructions on how to apply to enter these classes, consult Rice's neuroscience website at <http://www.ruf.rice.edu/~neurosci/>.

See NEUR in the Courses of Instruction section.

PHILOSOPHY

THE SCHOOL OF HUMANITIES

CHAIR

Steven G. Crowell

PROFESSORS

Baruch Brody

Hugo Tristram Engelhardt, Jr.

Richard E. Grandy

Mark Kulstad

Donald Ray Morrison

George Sher

ASSOCIATE PROFESSORS

Eric Margolis

Alastair Norcross

ASSISTANT PROFESSORS

Sherrilyn Roush

Hanoch Sheinman

Rachel Zuckert

ADJUNCT PROFESSOR

Laurence McCullough

DEGREES OFFERED: BA, MA, PHD

Philosophy is best described as the attempt to think clearly and deeply about the fundamental questions that arise for us as human beings. What is the nature of knowledge (epistemology)? How are we to distinguish between what really is and what only seems to be (metaphysics)? What is the right thing to do (ethics)? Is there any meaning to existence? To study the history of philosophy is to study the best, most enduring answers that have been given to these questions in the past. Because every other field of study adopts some stance toward these questions, though often implicitly, philosophical issues arise in the natural and social sciences, history, linguistics, literature, art, and so on. Special courses in philosophy deal with each of these. Characteristic of philosophy are commitments to the construction and evaluation of arguments, to expressing thoughts clearly and precisely, and to defending one's ideas and evaluating the ideas of others. The study of philosophy thus provides resources for critical participation in all realms of human endeavor.

The graduate program trains students to teach and pursue research in the main areas of department concentration: ethics (especially bioethics) and social and political philosophy, history of philosophy, continental philosophy, and core portions of contemporary analytic philosophy.

DEGREE REQUIREMENTS FOR BA IN PHILOSOPHY

For general university requirements, see Graduation Requirements (pages 14-15). Students majoring in philosophy must complete 30 semester hours (10 3-hour departmental courses); at least 18 hours (6 courses) must be at the 300 level or above. A double major must complete 27 hours (9 3-hour departmental courses) with all other requirements remaining the same.

Majors must take the following courses:

- PHIL 201 *History of Philosophy I*
- PHIL 202 *History of Philosophy II*
- Either PHIL 106 *Logic* or PHIL 305 *Mathematical Logic*

In addition, majors must take at least one course from each of the following area lists:

History

PHIL 301 *Ancient and Medieval Philosophy*

PHIL 302 *Modern Philosophy*

PHIL 308 *Continental Philosophy*

PHIL 321 *Kant and 19th Century Philosophy*

Core AnalyticPHIL 303 *Theory of Knowledge*PHIL 304 *Metaphysics*PHIL 312 *Philosophy of Mind*PHIL 313 *Philosophy of Science*PHIL 353 *Philosophy of Language***Value Theory**PHIL 306 *Ethics*PHIL 307 *Social & Political Philosophy*PHIL 326 *History of Ethics*PHIL 327 *History of Social & Political Philosophy***DEGREE REQUIREMENTS FOR MA AND PHD
IN PHILOSOPHY**

For general university requirements, see Graduate Degrees (pages 57–58). Students have the additional option of applying for a doctoral program specializing in bioethics (see below).

For the **MA** in philosophy, candidates must:

- Complete with high standing at least 30 semester hours in advanced courses approved by the department
- Complete a written thesis on a subject approved by the department
- Perform satisfactorily on a final oral examination (not limited to the student's special field of study)

For the **PhD** in philosophy, candidates must:

- Complete with high standing 42 hours of course work approved by the department (including logic)
- Demonstrate competence in logic
- Pass a qualifying examination
- Perform satisfactorily on an oral defense of their thesis proposal
- Complete a written thesis on a subject approved by the department (at least one year of thesis research must be spent in residence)
- Perform satisfactorily on a final oral examination (not limited to the student's special field of study)

Bioethics Program—The PhD in philosophy with a specialization in medical ethics is offered in cooperation with the Center for Medical Ethics and Health Policy at Baylor College of Medicine. Applicants to this special program must have enough background in philosophy to complete two and a half years of strong general training in philosophy at the graduate level. After completing their general training, students receive instruction in clinical bioethics at Baylor College of Medicine and then write a dissertation drawing upon their philosophical and clinical training. Further information about this program is available from the Department of Philosophy.

CONTINENTAL PHILOSOPHY PROGRAM

The PhD program in Continental philosophy allows graduate students to take advantage of resource faculty in history, French studies, philosophy, and religious studies, all of whom have done distinguished philosophical work in the Continental tradition. Students master the basic fields of analytic philosophy while doing a substantial amount of their course work with resource faculty. Further information is available from the Department of Philosophy.

See PHIL in the Courses of Instruction section.

PHYSICS AND ASTRONOMY

THE WIESS SCHOOL OF NATURAL SCIENCES

CHAIR

F. Barry Dunning

PROFESSORS

Billy E. Bonner

Paul A. Cloutier

Marjorie D. Corcoran

Michael W. Deem

Rui-Rui Du

Ian M. Duck

Reginald J. Dufour

Arthur A. Few, Jr.

James P. Hannon

Thomas W. Hill

Huey W. Huang

Randall G. Hulet

Neal Lane

Eugene H. Levy

Edison P. Liang

Hannu E. Miettinen

Gordon S. Mutchler

Peter Nordlander

Carl Rau

Patricia H. Reiff

Jabus B. Roberts, Jr.

Qimiao Si

Richard E. Smalley

Paul M. Stevenson

PROFESSORS EMERITI

Stephen D. Baker

John W. Freeman

William E. Gordon, *Distinguished*

F. Curtis Michel

Ronald E. Stebbings

G. King Walters

Richard A. Wolf

ASSOCIATE PROFESSORS

David Alexander

Anthony A. Chan

Stanley A. Dodds

Patrick M. Hartigan

ASSISTANT PROFESSORS

Matthew G. Baring

Giovanni Fossati

Jason H. Hafner

Christopher Johns-Krull

Ching-Hwa Kiang

Thomas C. Killian

Douglas A. Natelson

Uwe Oberlack

B. Paul Padley

Han Pu

Frank R. Toffoletto

ADJUNCT PROFESSORS

David C. Black

James L. Burch

Franklin R. Chang-Diaz

James H. Newman

Carolyn Sumners

J. David Winningham

ADJUNCT ASSOCIATE PROFESSORS

Hui Li

Tomasz F. Stepinski

INSTRUCTORS

Leonard E. Suess

Sujeev Wickramasekara

SENIOR FACULTY FELLOWS

Bernard G. Lindsay

William J. Llope

Pablo P. Yepes

FACULTY FELLOW

Ian A. Smith

DEGREES OFFERED: BA, BS, MST, MS, PHD

The Department of Physics and Astronomy offers undergraduate and graduate programs for a wide range of interests. The bachelor of arts degrees in physics and in astronomy are suitable for students who wish to obtain a broad liberal education with a concentration in physical science. The bachelor of science degrees in physics, in astrophysics, and in chemical physics provide preparation for employment or further study in physics and related fields. Students in the professional non-thesis, MST program obtain training in science teaching. Research facilities and thesis supervision are available for MS and PhD students in atomic, molecular, and optical

physics; biophysics; condensed matter and surface physics; earth systems science; nuclear and particle physics; observational astronomy; solar system physics; space plasma physics; and theoretical physics and astrophysics.

UNDERGRADUATE DEGREE REQUIREMENTS

For general university requirements, see Graduation Requirements (pages 14–15). Major requirements consist of a common core of basic physics and mathematics courses, with additional course work specific to each degree program. Students may obtain credit for some courses by advanced placement, and the department's Undergraduate Committee can modify requirements to meet the needs of students with special backgrounds.

All physics majors must complete the following courses:

PHYS 101 or 111 *Mechanics (with Lab)*
 PHYS 102 or 112 *Electricity and Magnetism (with Lab)*
 PHYS 201 *Waves and Optics*
 PHYS 202 *Modern Physics*

Additional courses for the BS degree in physics:

PHYS 302 *Intermediate Electrodynamics*
 PHYS 311/312 *Introduction to Quantum Physics I and II*
 PHYS 331/ 332 *Junior Physics Laboratory I and II*
 PHYS 411 *Introduction to Nuclear and Particle Physics*
 PHYS 412 *Solid-state Physics*
 PHYS 425 *Statistical and Thermal Physics*
 PHYS 491/492 *Undergraduate Research*

Additional courses for the BS degree in physics with option in applied physics:

PHYS 302 *Intermediate Electrodynamics* or ELEC 306 *Electromagnetic Fields and Devices*
 PHYS 311 *Introduction to Quantum Physics I*
 PHYS 312 *Introduction to Quantum Physics II* or ELEC 361 *Electronic Materials and Quantum Devices*
 2 of: PHYS 331/332 *Junior Physics Laboratory I and II*, ELEC 327 *Digital Logic Design Laboratory*, ELEC 342 *Electronic Circuits*, and ELEC 465 *Physical Electronics Practicum*
 PHYS 412 *Solid-state Physics* or Approved substitute in applied physics
 PHYS 425 *Statistical and Thermal Physics*

PHYS 231 *Elementary Physics Laboratory II*
 PHYS 301 *Intermediate Mechanics*
 MATH 101/102 *Single Variable Calculus I and II*
 MATH 211 *Ordinary Differential Equations and Linear Algebra*
 MATH 212 *Multivariable Calculus*
 (MATH 221/222 *Honors Calculus III* and IV may substitute for MATH 211/ MATH 212)

PHYS 493/494 *Undergraduate Research Seminar*

(The Undergraduate Research course and seminar must be taken concurrently.)

MATH 381 *Introduction to Partial Differential Equations* and MATH 382 *Complex Analysis* or CAAM 335 *Matrix Analysis* and CAAM 336 *Differential Equations in Science and Engineering*

CHEM 121/122 *General Chemistry with Laboratory* or CHEM 151/152 *Honors Chemistry with Laboratory*

PHYS 491/492 *Undergraduate Research*
 PHYS 493/494 *Undergraduate Research Seminar*

(The Undergraduate Research course and seminar must be taken concurrently.)

ELEC 242 *Fundamentals of Electrical Engineering II* or ELEC 243 *Introduction to Electronics*, ELEC 305 *Introduction to Physical Electronics*

MATH 381 *Introduction to Partial Differential Equations* or CAAM 336 *Differential Equations in Science and Engineering*

CHEM 121/122 *General Chemistry with Laboratory* or CHEM 151/152 *Honors Chemistry with Laboratory*

Additional courses for the BS degree in physics with option in biophysics:

PHYS 302 *Intermediate Electrodynamics*
 PHYS 311/312 *Introduction to Quantum Physics I and II*
 PHYS 425 *Statistical and Thermal Physics*
 BIOS 201/202 *Introductory Biology*

Additional courses for BS degree in physics with option in computational physics:

PHYS 302 *Intermediate Electrodynamics*
 PHYS 311/312 *Introduction to Quantum Physics I and II*
 PHYS 416 *Computational Physics*
 PHYS 425 *Statistical and Thermal Physics*
 PHYS 491/492 *Undergraduate Research*
 PHYS 493/494 *Undergraduate Research Seminar*

(The Undergraduate Research course and seminar must be taken concurrently.)

MATH 381 *Introduction to Partial Differential Equations* and MATH 382 *Complex Analysis*

Additional courses for the BS degree in astrophysics:

PHYS 302 *Intermediate Electrodynamics*
 PHYS 311 *Introduction to Quantum Physics I*
 PHYS 425 *Statistical and Thermal Physics*
 ASTR 230 *Astronomy Laboratory*
 ASTR 350/360 *Introduction to Astrophysics—Stars, Galaxies, and Cosmology*

3 courses from:

ASTR 450 *Experimental Space Science*
 ASTR 451 *Solar and Stellar Astrophysics*
 ASTR 452 *Galaxies and Cosmology*
 ASTR 470 *Solar System Physics*

Additional courses for the BA degree in physics:

PHYS 302 *Intermediate Electrodynamics*
 PHYS 311 *Introduction to Quantum Physics I*
 PHYS 331 *Junior Physics Laboratory I*
 PHYS 425 *Statistical and Thermal Physics*

BIOS 301 *Biochemistry*
 CHEM 121/122 *General Chemistry with Laboratory*
 or CHEM 151/152 *Honors Chemistry with Laboratory*
 CHEM 211/212 *Organic Chemistry*
 CHEM 215 *Organic Chemistry Laboratory*

or CAAM 335 *Matrix Analysis* and CAAM 336 *Differential Equations in Science and Engineering*

CAAM 210 *Introduction to Engineering Computation*

CAAM 353 *Computational Numerical Analysis*
 CAAM 420 *Computational Science I*

1 of: CAAM 452 *Numerical Methods for Partial Differential Equations*, CAAM 453 *Numerical Analysis*, CAAM 520 *Computational Science II*
 CHEM 121 *General Chemistry with Laboratory*
 or CHEM 151 *Honors Chemistry with Laboratory*

PHYS 312 *Introduction to Quantum Physics II*
 PHYS 480 *Introduction to Plasma Physics*
 PHYS 491/492 *Undergraduate Research*
 PHYS 493/494 *Undergraduate Research Seminar*

(The Undergraduate Research course and seminar must be taken concurrently.)

NSCI 230 *Computation in Natural Science* or
 CAAM 210 *Introduction to Engineering Computation*

CAAM 336 *Differential Equations in Science and Engineering*

CHEM 121 *General Chemistry with Laboratory*

1 additional PHYS or ASTR course (3 credit hours) at 400 level

NSCI 230 *Computation in Natural Science* or CAAM 210 *Introduction to Engineering Computation* or 1 MATH or CAAM course (3 credit hours) at or above 300 level

Additional courses for the BA degree in astronomy:

PHYS 331 *Junior Physics Laboratory I*
 or NSCI 230 *Computation in Natural Science*
 PHYS 425 *Statistical and Thermal Physics*
 or CHEM 311 *Physical Chemistry*
 ASTR 100 *Exploring the Cosmos*

ASTR 230 *Astronomy Laboratory*
 ASTR 350/360 *Introduction to Astrophysics—Stars, Galaxies, and Cosmology*
 ASTR 470 *Solar System Physics*
 1 of: ASTR 430 *Teaching Astronomy Laboratory*, ASTR 450 *Experimental Space Science*, or PHYS 443 *Atmospheric Science*

Additional courses for the BS degree in chemical physics:

CHEM 121/122 *General Chemistry* or
 CHEM 151/152 *Honors Chemistry with Laboratory*
 CHEM 211 *Organic Chemistry*
 CHEM 212 *Organic Chemistry*
 or CHEM 360 *Inorganic Chemistry*

CHEM 311/312 *Physical Chemistry*
 PHYS 302 *Intermediate Electrodynamics*
 2 of: PHYS 311 or 312 *Introduction to Quantum Physics I or II*, CHEM 415 *Chemical Kinetics and Dynamics*, and CHEM 430 *Quantum Chemistry*

6 credit hours from:

CHEM 215 *Organic Chemistry Laboratory*,
 CHEM 351 or 352 *Introductory Module in Experimental Chemistry*, CHEM 373–391,
 CHEM 435 *Methods of Computational Quantum Chemistry*, and PHYS 331 or
 332 *Junior Physics Laboratory I or II*;
 up to 2 hours of CHEM 491 *Research*

for Undergraduates or PHYS 491/492
Undergraduate Research may be counted
 toward this requirement.

6 credit hours from:

NSCI 230 *Computation in Natural Science*,
 CAAM 210, *Introduction to Engineering Computation*, and MATH, or CAAM courses at
 or above 300 level

REQUIREMENTS FOR ADVANCED DEGREES

For general university requirements, see Graduate Degrees (pages 57–58). More detailed information on courses and requirements is available from the Department of Physics and Astronomy.

The master of science teaching requires 30 credit hours of approved course work.

The master of science is a research degree, normally undertaken as the first stage of doctoral study. The MS requires at least 30 credit hours of approved graduate-level studies, including a thesis performed under the direction of a departmental faculty member.

To be eligible for the PhD degree, graduate students must demonstrate to the department their ability to engage in advanced research. This is normally accomplished by successfully completing the work for the MS. Students must also complete 60 credit hours of approved graduate-level study at Rice and produce a research thesis under the direction of a departmental faculty member. At least two years of graduate study are required for the PhD.

See ASTR and PHYS in the Courses of Instruction section.

POLICY STUDIES

THE SCHOOL OF SOCIAL SCIENCES

DIRECTOR

Donald Ostdiek

DEGREE OFFERED: BA

This interdisciplinary major focuses on policy issues that are of public interest. Students in policy studies evaluate and analyze both the determinants and the effects of policy decisions, gaining an understanding of the policy-making process and acquiring an intellectual base for policy-making skills. The course of study addresses theoretical issues as well as applied and prescriptive policy questions.

Students may take policy studies *only as a second major*. It complements majors in any university department. For instance, engineering or science majors who are contemplating careers in business or government can investigate how technical innovations or regulations are adopted and implemented as matters of public policy, and humanities majors can explore career options where language skills are particularly valuable.

Students are encouraged to investigate research opportunities with Rice faculty. Students may also elect to participate in the Washington Semester Program at American University, which includes both course work and an internship within the federal government. See the policy studies director for more information.

DEGREE REQUIREMENTS FOR BA IN POLICY STUDIES

For general university requirements, see Graduation Requirements (pages 14-15). Students may take the policy studies major only as a second major (their first major cannot also be in an interdepartmental program). The major contains 11 courses divided into the following elements: a basic curriculum, an area curriculum, and a research requirement.

The policy studies **basic curriculum** introduces students to the basic concepts and tools needed to understand and study policy, regardless of the policy area they choose to focus on. The four courses ensure that all policy studies majors have a common professional vocabulary and conceptual frame of reference. The policy studies **area curriculum** provides specialized training that builds on students' work in the basic curriculum.

Students are required to take 6 courses from one of the following areas of specialization:

- Environmental policy
- Government policy and management
- Healthcare management
- International affairs
- Law and justice
- Business policy and management
- Urban and social change

Policy studies students must also engage in a research project in their area of interest. In consultation with the policy studies director, each student must select a

research seminar or complete an approved research project through independent study or other credit. The Policy Studies Research Seminar (SOSC 400) also counts for this requirement.

4 Basic Curriculum Courses

POLI 338/SOSC 301 *Policy Analysis*

ECON 211 or 212 *Principles of Economics I or II*

POLI 337 *Public Policy and Bureaucracy*

1 advanced analysis or methods course approved by the policy studies director

6 Area Curriculum Courses

6 courses from one of the following seven groups:

1. Environmental Policy (Choose 6)

ECON 480 *Environmental and Energy Economics I*

POLI 331 *Environmental Politics and Policy*

SOCI 367 *Environmental Sociology*

ENVI 306 *Global Environmental Law and Sustainable Development*

ENVI 406 *Introduction to Environmental Law*

HIST 330 *U.S. Environmental History*

ARCH 313 *Sustainable Architecture*

ANTH 468 *Palaeoclimate and Human Response*

BIOS 322 *Global Ecosystem Dynamics*

BIOS 324 *Wetland Ecosystems*

BIOS 325 *Ecology*

ENGL 478 *Literature and the Environment*

ENVI/HPHS 201 *Introduction to Environmental Systems*

ENVI 445 *Natural Environmental Factors*

GEOL 326 *Environmental Geology*

GEOL 341 *The Oceans*

GEOL 345 *Geology of National Parks*

POLI 336 *Politics of Regulation*

RELI 362 *Environmental Ethics*

SPAC 203 *Atmosphere, Weather, and Climate*

SPAC 443/ENVI 443 *Atmospheric Science*

UNIV 303 *Environmental Problem Solving*

2. Government Policy and Management (Choose 6)

ECON 436 *Government Regulation of Business*

ECON 461 *Urban Economics*

ECON 483 *Public Finance*

POLI 300 *Federalism and Intergovernmental Politics*

POLI 301 *State Politics*

POLI 332/432 *Urban Politics*

POLI 436 *Politics of Regulation*

ANTH 344 *City/Culture*

ECON 438 *Economics of the Law*

ECON 480 *Environmental and Energy Economics I*

POLI 330 *Minority Politics*

POLI 331 *Environmental Politics and Policy*

POLI 335 *Political Environment of Business*

POLI 458 *Property Rights and Privatization*

ENVI 406 *Introduction to Environmental Law*

HIST 468 *Women and the Welfare State*

SOSC 330 *Healthcare Reform in the 50 States*

SOSC 430 *The Shaping of Health Policy in the United States*

SOCI 308 *Houston: The Sociology of a City*

SOCI 331 *Politics and Society in Texas*

SOCI 370 *Sociology of Education*

SOCI 350 *Sociological Approaches to Poverty*

SOCI 399 *Immigration and Public Health*

SOCI 411 *Social Change*

SOCI 441 *Minorities in the Schooling Process*

3. Healthcare Policy and Management (Choose 6)

ANTH 381 *Medical Anthropology*

ANTH 386 *Human Nutrition*

ANTH 388 *Life Cycle: A Biocultural View*

HEAL 212 *Consumer Health*

HEAL 350 *Understanding Cancer*

HEAL 407 *Epidemiology*

HEAL 410 *Program Development in Health Education*

PHIL 315 *Ethics, Medicine, and Public Policy*

RELI 462/463 *Medical Ethics and American Values I and II*

SOSC 330 *Healthcare Reform in the 50 States*

SOSC 420 *Healthcare: Competition and Managed Care*

SOSC 430 *The Shaping of Health Policy in the United States*

SOCI 334 *Sociology of the Family*

SOCI 345 *Sociology of Medicine*

SOCI 399 *Immigration and Public Health*

SPAN 307/308 *The Language of Healthcare*

4. International Affairs

(Choose 6)

ECON 420 *International Economics*

POLI 372 *American Foreign Policy*

POLI 376 *International Political Economy*

POLI 378 *The Politics of American National Security Policy*

POLI 462 *Comparative Public Policy*

ANTH 360 *Modernity and Social Space*

ECON 421 *International Finance*

ECON 430 *Comparative Economic Systems*

ECON 451 *Political Economy of Latin America*

HIST 232 *The Making of Modern Africa*

HIST 353 *The Cold War*

HIST 394 *War in the Modern World*

HIST 464 *Foreign Policy of Nixon and Kissinger*

HIST 469 *US-Latin America Relation*

POLI 354 *Latin American Politics*

POLI 355 *Government and Politics of the Middle East*

POLI 356 *Politics of Latin American Economic Development*

POLI 360 *West European Democracies*

POLI 361 *Comparative Post-Communist Systems*

POLI 373 *International Conflict*

POLI 376 *International Political Economy*

POLI 464 *Political Economy of Development*

5. Law and Justice (Choose 6)

ANTH 326 *Anthropology of Law*

ANTH 419 *Law and Society*

ECON 438/439 *Economics of the Law I and II*

ENVI 406 *Introduction to Environmental Law*

HIST 297/298 *American Legal History I and II*

PHIL 307 *Social and Political Philosophy*

PHIL 316 *Philosophy of Law*

POLI 321 *American Constitutional Law*

POLI 458 *Property Rights and Privatization*

SOCI 321 *Criminology*

6. Business Policy and Management (Choose 6)

ECON 436 *Government Regulation of Business*

ECON 445 *Managerial Economics*

ECON 435 *Industrial Organization*

POLI 335 *Political Environment of Business*

POLI 336 *Politics of Regulation*

PSYC 231 *Industrial and Organizational Psychology*

ACCO 305 *Introduction to Accounting*

ECON 355 *Money and Banking*

ECON 370 *Microeconomic Theory*

ECON 375 *Macroeconomic Theory*

ECON 415 *Human Resources, Wages, and Welfare*

ECON 420 *International Economics*

ECON 421 *International Finance*

ECON 448 *Corporation Finance*

HIST 331 *Labor in America*

POLI 376 *International Political Economy*

POLI 458 *Property Rights and Privatization*

POLI 464 *Political Economy of Development*

7. Urban and Social Change

ANTH 344 *City/Culture*

ANTH 360 *Modernity and Social Space*

ARCH 311 *Houston Architecture*

ARCH 313 *Sustainable Architecture*

ARCH 321 *Economics of the Built Environment*

ARCH 346 *19th- and 20th-Century Architectural History*

ARCH 351 *Social Issues and Architecture*

ARCH 455 *Housing and Urban Programs*

ECON 461 *Urban Economics*

ECON 480 *Environmental Economics*

HIST 377 *The Ancient City*

HIST 429 *Technologies of Nationalism*

HART 325 *Art and Architecture in the Middle East*

PHIL 307 *Social and Political Philosophy*

SOCI 301 *Social Inequality*

SOCI 308 *Houston: The Sociology of a City*

SOCI 309 *Race and Ethnic Relations*

SOCI 310 *Urban Sociology*

SOCI 313 *Demography*

SOCI 411 *Social Change*

POLI 332 *Urban Politics*

POLI 438 *Race and Public Policy*

POLI 441 *Common Property Resources*

POLITICAL SCIENCE

THE SCHOOL OF SOCIAL SCIENCES

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DEGREES OFFERED: BA, MA, PHD

Students majoring in political science are encouraged to achieve both a broad understanding of the field and a specialized knowledge of one or more aspects of political science, including American and comparative politics, international relations (see also majors in managerial studies and public policy). Graduate study is grounded in the areas of American government (public policy, Congress, and intergovernmental relations), comparative government (Western Europe, Latin America, and political development), and international relations (international conflict).

DEGREE REQUIREMENTS FOR BA IN POLITICAL SCIENCE

For general university requirements, see Graduation Requirements (pages 14-15). Students majoring in political science must complete 30 semester hours (10 courses) in the field of political science, plus 6 hours (2 courses) of upper-level work in any of the following fields: anthropology, economics, history, philosophy, psychology, or sociology. Students select these upper-level courses in consultation with the department adviser.

For students who entered Rice in fall 1999 and thereafter, political science degree requirements are as follows:

- At least 1 course in each of the following fields: American government, comparative politics, international relations, theory and methods.
- At least 2 of the 4 introductory courses
- A concentration of at least 4 courses in one of the following fields: American government, comparative politics, international relations. These 4 courses must include the introductory course and a seminar.
- A statistics course offered by the Department of Political Science
- 2 seminars, at the 400 or 500 level, with different instructors

Students who entered Rice before fall 1999 may choose to satisfy the above requirements, or they may satisfy requirements in force at the time of their enrollment at Rice, which usually will be as follows:

- At least 1 course in any four of the following areas: American political institutions and behavior, comparative politics, international relations, political philosophy and legal theory, empirical theory and method, and American public policy
- 2 seminars, at the 400 or 500 level, with different instructors

Double majors in one of the related disciplines named above may automatically substitute 6 hours (2 courses) in upper-level studies (at the 300 level or above) from their second field for 6 of the required 30 hours of political science courses. Double majors whose second major is managerial studies or policy studies may automatically substitute 3 hours (1 course). Double majors whose second major is in a field other than those listed above normally must take the full 30 hours (10 courses) in political science. They may petition to substitute a course from another field for a political science course, but this is permitted only when the course to be substituted has a significant relationship to political science. Note: The reduction of political science course requirements for double majors is eliminated for students who entered in and after fall 1999.

Introductory Courses—POLI 209 *Introduction to Constitutionalism and Modern Political Thought*, POLI 210 *American Government and Politics*, POLI 211 *International Relations*, and POLI 212 *Introduction to Comparative Politics* constitute the introductory courses in political science. **Students entering in the fall 1999 and after must take at least 2 of these, including the 1 in the field of specialization.** Students should note, however, that POLI 210 is the course that meets the Texas state licensing requirements in political science for teachers. Students who entered Rice before fall 1999 and choose to stay with the old plan may count no more than 2 of the introductory courses toward their major requirements.

Directed Readings Courses—Directed readings courses are intended for students who have completed a substantial number of political science courses and who seek to explore a subject not covered in regular courses. They are available only if an appropriate faculty member agrees to supervise. The faculty member supervising a directed readings course must have a full-time appointment, and a student may not take more than 1 readings course from him or her. Students should submit a brief, one-page description of the work to be conducted in the readings course (including the name of the faculty supervisor) to the department director of undergraduate studies no later than two weeks into the semester in which they intend to take the course. Readings courses do not count toward the department's distribution requirement.

Honors Program—Admission to the honors program requires the approval of the department director of undergraduate studies. During the first semester of the two-semester program, students take a readings course that provides them with a basis for drawing up a thesis prospectus. At the end of the first semester, a thesis committee composed of two full-time members of the political science department reviews and approves the prospectus. During the second semester, students write their honors thesis, which also must meet with committee approval. Students may not combine the 2 honors courses into one semester. Those who successfully complete the honors program may substitute it for one of the seminars required for the major. See also Honors Programs (page 26).

DEGREE REQUIREMENTS FOR MA AND PHD IN POLITICAL SCIENCE

For general university requirements, see Graduate Degrees (pages 57–58). Students in the PhD program must complete 48 semester hours in advanced courses

or seminars before candidacy and conclude the degree program with the oral presentation of a dissertation displaying original research. Normally, students take the specified core courses in the three general fields of American government, comparative government, and international relations, completing additional course work and comprehensive examinations in two of those three fields. Before taking the comprehensive examinations, students must:

- Complete courses in statistical analysis
- Demonstrate some familiarity with traditional political theory
- Satisfy the language or skill requirement in their major field
- Complete all course requirements

Students select specific courses for graduate study in consultation with the faculty adviser.

The master of arts degree can be obtained with 36 semester hours of course work, all of which must be taken at the graduate level (400 level or above), and the completion of 2 research papers in seminars taken over the course of study. A minimum G.P.A. of 3.0 is required for awarding the MA.

The political science department requires that not more than three years elapse between the time the student is admitted to graduate study and the completion of the MA degree, unless an extension is approved by the department graduate committee.

See POLI in the Courses of Instruction section.

PSYCHOLOGY

THE SCHOOL OF SOCIAL SCIENCES

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RESEARCH SCIENTIST

Chaiyapoj Nestsiri

POSTDOCTORAL RESEARCH

ASSOCIATES

Philip C. Burton

Rachel G. Hull

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DEGREES OFFERED: BA, MA, PHD

The undergraduate program offers the core preparation recommended by the nation's leading graduate schools of psychology, with advanced courses and research opportunities to fit individual needs. Programs of study may be structured around prospective careers in medicine, law, business, and education as well as in psychology.

Program emphasis in graduate study is on doctoral training, which includes course work in memory, cognition, engineering and industrial/organizational psychology, social psychology, and methodology. Faculty research interests include cognitive psychology (human memory, psycholinguistics, perception, and information processing), cognitive neuropsychology (memory, perception, and language disorders), human-computer interaction, and industrial/organizational psychology (personnel selection, training, work motivation, discrimination, and group processes).

DEGREE REQUIREMENTS FOR BA IN PSYCHOLOGY

For general university requirements, see Graduation Requirements (pages 20–23). Students majoring in psychology must complete 29 semester hours in departmental courses, including the following required courses.

Core Courses

PSYC 101 *Introduction to Psychology*

PSYC 202 *Introduction to Social Psychology*

PSYC 203 *Introduction to Cognitive Psychology*

PSYC 339 *Statistical Methods—Psychology*

PSYC 340 *Research Methods* (no substitutions or transfer credits allowed for PSYC 339 or 340)

At least 1 course from each block*

Block 1

PSYC 308 *Memory*

PSYC 309 *Psychology of Language*

PSYC 350 *Psychology of Learning*

PSYC 351 *Psychology of Perception*

PSYC 360 *Thinking*

PSYC 362 *Biopsychology*

Block 2

PSYC 321 *Developmental Psychology*

PSYC 329 *Psychological Testing*

PSYC 330 *Personality Theory*

PSYC 331 *The Psychology of Gender*

PSYC 332 *Abnormal Behavior*

PSYC 460 *The Psychology of Emotion and Motivation*

*No substitutions or transfer credits allowed to fulfill Block 1 and 2 requirements.

Honors Program—Qualified students may apply to the honors program during preregistration in the spring semester of their junior year. A written proposal for the project must be submitted by the end of the second week of classes in fall of the senior year, and the faculty will decide on final admission to the honors program by the end of the fourth week of classes. Admission to the honors program requires a psychology GPA of 3.7 and an overall GPA of 3.5, completion of PSYC 339, and completion or concurrent enrollment in PSYC 340. To graduate with departmental honors, students must complete the requirements for the psychology major, a written honors thesis approved by a faculty committee, and other requirements as determined by their honors committee (see Honors Program, page 26). Detailed information about the honors program is available from the instructor of the course or the departmental office.

DEGREE REQUIREMENTS FOR MA AND PHD IN PSYCHOLOGY

Students must complete an admission-to-candidacy procedure that should establish their expertise in their chosen specialty. For general university requirements, see Graduate Degrees (pages 57–58). For both MA and PhD degrees, students must complete a research thesis, including a public oral defense, and accumulate 30 semester hours for the MA and 60 hours for the PhD. Course work includes required courses in certain areas, plus whatever offerings are available in the student's specialty area, either cognitive/experimental, industrial/organizational/social, or engineering psychology. Competence in a foreign language is not required.

See PSYC in the Courses of Instruction section.

RELIGIOUS STUDIES

THE SCHOOL OF HUMANITIES

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ADJUNCT ASSOCIATE PROFESSOR

Elizabeth Heitman

LECTURER

Beverlee Jill Carroll

David Gray

DEGREES OFFERED: BA, PHD

The undergraduate major includes courses in methodology (textual, historical, normative, and sociocultural approaches to the study of religion) and religious traditions (African religions, Buddhism, Christianity, comparative religions, Hinduism, Islam, and Judaism). For research degrees in the graduate program, see below. Within these clearly defined fields, students acquire a broad knowledge of religious studies with enough flexibility for interdisciplinary pursuits.

DEGREE REQUIREMENTS FOR BA IN RELIGIOUS STUDIES

For general university requirements, see Graduation Requirements (pages 14–15). In addition, students must also satisfy the distribution requirements and complete no fewer than 60 semester hours outside the departmental requirements for a program totaling at least 120 semester hours. See Distribution Requirements (pages 15–16) and Majors (pages 17–18).

Students majoring or double-majoring in religious studies must complete:

- 30 hours for majors
- 24 hours for double majors
- 24 hours for majors at 200, 300, or 400 level
- 18 hours for double-majors at 200, 300, or 400 level
- No more than 2 courses outside the Department of Religious Studies

To ensure breadth and depth to the major, students are encouraged to work out a program of study with the undergraduate advisor. The 30 hours (24 for double-majors) must include the following requirements:

- RELI 101 *Introduction to Religion*
- 2 introductory courses in religious traditions (one Western; one non-Western)
- At least 3 courses concentrated in one of the following fields: Judaism, Christianity, African religion, Buddhism, comparative studies, cross-cultural studies, Islam, Hinduism, methodological studies, or ethics/philosophy of religion

Honors Program. Qualified undergraduates may choose the option of writing a senior thesis. To complete a thesis, the student must enroll for 6 hours in addition to the 30 hours (24 for double majors) required for the major. Students are expected

to have at least a 3.50 average in their religious studies courses before undertaking thesis work and must obtain the permission of a faculty advisor who will supervise the project, usually during the second semester of the junior year and first semester of the senior year. Any additional supervisors and readers of the completed thesis (if any) will be arranged in advance by the primary faculty advisor in consultation with relevant faculty.

DEGREE REQUIREMENTS FOR PHD IN RELIGIOUS STUDIES

The graduate program accepts a limited number of qualified students. A distinguished undergraduate record and high scores on the Graduate Record Examination (GRE) are essential and an advanced degree in the humanities is desirable. For general university requirements, see Graduate Degrees (pages 57-58). Students admitted into the program will normally receive financial assistance in the form of a tuition waiver and a stipend. As part of their training and in return for their stipends, students in their second year and beyond are expected to perform a minimum amount of services in return for their stipend by assisting the department as needed.

The PhD in religious studies is normally a five-year program. Requirements are as follows:

- 18 courses (54 hours required)
 - 6 courses in the major field
 - 3 courses in each of two minor fields (see list of fields below)
 - 2 department seminars (one or more of which may count as a major or minor course) to be taken in each of the first two years
 - 4 to 6 elective courses chosen in consultation with the student's adviser
- Passing grades on reading examinations in 2 foreign languages, at least 1 of which must be a language of scholarship in the student's chosen field
- Passing grades in 5 qualifying examinations: 3 in the student's major field, 1 in each of the student's 2 minor fields. (In place of examinations, the student may, in consultation with the faculty member, substitute papers that demonstrate a thorough grasp of the field.) The nature and content of the examinations or papers will be determined one year prior to the date the student expects to write them, which is ordinarily the end of the third or beginning of the fourth year in the program.
- Oral discussion of dissertation proposal
- Satisfactory completion of dissertation and oral defense

Reading Lists—Students should become broadly familiar with the literature of their majors and minors; reading lists will be provided. Students are expected to familiarize themselves with this material enough that they draw on it on their exams and the dissertation itself. The graduate seminar is, in part, an introduction to areas of the reading list and to the techniques for engaging in deep, independent reading.

Fields of Study—Religion and contemporary cultures, scriptural interpretation, ethics and philosophy of religion, mysticism, psychology, and religious practices are fields of study in this program. These fields will include courses covering one or more of the following traditions: African and African-based religions, Buddhism, Christianity, Hinduism, Judaism, and new and alternative religions. Students may concentrate in one or more of these traditions in the context of their major and minor fields.

PROFESSIONAL DEVELOPMENT

Opportunities may be available to teach undergraduate courses in the department or in local colleges and universities. Limited funds are also available for students to attend conferences to present their research. The department encourages these and other efforts to prepare students for academic careers.

See RELI in the Courses of Instruction section.

SOCIOLOGY

THE SCHOOL OF SOCIAL SCIENCES

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ASSISTANT PROFESSORS

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Holly Heard

Scott Phillips

DEGREE OFFERED: BA

This undergraduate major fosters an analytic approach to the study of human societies, whether as a preparation for graduate work in sociology and related fields, or as the foundation for a variety of occupations. It is also an important component of a liberal arts education and as such, can serve as effective preparation for professions such as law or medicine. The program provides students with considerable latitude in pursuing personal interests while ensuring familiarity with basic theoretical approaches and research methods.

DEGREE REQUIREMENTS FOR THE BA IN SOCIOLOGY

For general university requirements, see Graduation Requirements (pages 14–15). Students majoring in sociology must complete at least 33 semester hours (11 courses) in sociology. Requirements for the major normally include the following.

SOCI 203 *Introduction to Sociology*

*SOCI 398 *Social Statistics*

1 of the following:

SOCI 390 *Research Methods*

SOCI 421 *Craft of Sociology*

At least 1 theory course, such as:

SOCI 317 *Contemporary Sociological Theory*

SOCI 359 *Individual and Society*

SOCI 395 *Feminist Social Thought*

Any other sociology courses to reach a total of 11

Sociology majors are not required to take a foreign language, but those planning graduate study should be competent in at least one such language. Some sociology courses listed in the Courses of Instruction section may not be offered every year, and courses among the regular offerings are occasionally added or dropped. Students are responsible for making sure they satisfy all the requirements for their degree. One of the sociology faculty, preferably department adviser Professor Long, should sign each major's registration.

*This requirement may be waived, and only 10 other courses required for the major, if a student passes the departmental statistics exam.

Honors Program—For general information, see Honors Programs (page 26). Students who have maintained an A- average in all sociology courses beyond the introductory level may apply to enter the honors program. They should submit their research proposals:

- a) by November 15 of the first semester of their junior year, in which case they will research and write their thesis during the second semester of their junior year and the first semester of their senior year
- b) by March 15 of the second semester of their junior year, in which case they will complete their thesis during the two semesters of their senior year.

Since departmental awards for seniors are usually determined around March 1, and the honors thesis is often taken into consideration in this determination, students who wish to be considered for these awards are advised to begin their thesis in the spring of their junior year. Research proposals must be carefully thought out and discussed with at least one professor before being submitted. Once submitted, they will be considered by the department faculty as a whole and, if acceptable, the student will be assigned a faculty adviser.

Students in the honors program register for two successive semesters in Directed Honors Research (SOCI 492 and 493). The first of the 2 courses is typically devoted to a thorough review of the relevant literature, the formulation of hypotheses growing out of the literature review, and a proposal consisting of a research design that clearly describes how the data are to be collected and analyzed. To receive a grade for the first semester, the student must submit a paper to the primary thesis adviser by the last day of classes. This paper must contain the literature review, hypotheses, and research design, along with a bibliography. The research itself is usually carried out in the second semester (and sometimes in the summer following the junior year) and is analyzed, written up, and defended as a completed Honors Thesis during that semester.

All honors students should complete SOCI 390 *Research Methods* or SOCI 421 *The Craft of Sociology* before beginning the second semester of the program. If their project requires statistical analysis, students should also complete SOCI 398 *Social Statistics* before beginning the second semester of their research.

See SOCI in the Courses of Instruction section.

STATISTICS

THE GEORGE R. BROWN SCHOOL OF ENGINEERING

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Marek Kimmel

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Rick K. Wilson (*joint appointment: Political Science*)

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Barbara Ostdieck (*joint appointment: Jones Graduate School of Management*)

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Kim-Anh Do

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LECTURERS

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Peter Olofsson

FACULTY FELLOW

Janet Siefert

DEGREES OFFERED: BA, MSTAT, MA, PHD

Course work in statistics acquaints students with the role played in the modern world by probabilistic and statistical ideas and methods. Students grow familiar with both the theory and the applications of techniques in common use as they are trained in statistical research. The flexibility of the undergraduate program allows students to concentrate on theoretical or applied training, or they may link their studies in statistics to work in other related departments (see majors in economics, education, electrical and computer engineering, computational and applied mathematics, managerial studies, mathematics, political science, and psychology). Graduate study has concentrations in applied probability, bioinformatics, biomathematics, biostatistics, computational finance, data analysis, density estimation, epidemiology, image processing, model building, quality control, statistical computing, spatical processes, stochastic processes, and time series analysis. A joint MBA/master of engineering degree is also available in conjunction with the Jesse H. Jones Graduate School of Management.

DEGREE REQUIREMENTS FOR BA IN STATISTICS

For general university requirements, see Graduation Requirements (pages 14-15). Students majoring in statistics normally complete the following:

- MATH 101/102 *Single Variable Calculus I and II*
- MATH 211 *Ordinary Differential Equations and Linear Algebra*
- CAAM 210 or 211 *Introduction to Engineering Computation*
- STAT 310 *Probability and Statistics*
- STAT 410 *Introduction to Statistical Computing and Regression*
- 6 elective courses from the statistics department (or other departments with approval from their adviser) at the 300 level or higher

Mathematically oriented students should also take MATH 212 *Multivariable Calculus* and MATH 355 *Linear Algebra* (or CAAM 335 *Matrix Analysis*).

The department offers a specialization in computational finance and through the Center for Computational Finance and Economic Systems.

DEGREE REQUIREMENTS FOR MSTAT, MA, AND PHD IN STATISTICS

For general university requirements, see Graduate Degrees (pages 57–58). Admissions applications should include scores on the Graduate Record Examination (GRE) in the quantitative, verbal, and analytical tests. Financial support is available for well-qualified doctoral students. Course work for all degree programs should be at the 400 level or above, although 2 approved 300-level courses may be accepted.

Master's Programs—Candidates for the nonthesis MStat degree must complete 30 semester hours of approved course work. Candidates for the MA degree in statistics must complete 30 semester hours of approved course work as well as one of the following: (1) complete an original thesis and defend it in a public oral examination; or (2) perform satisfactorily on the second-year PhD comprehensive examinations.

PhD Program—Candidates for the PhD degree in statistics must complete at least 90 semester hours of approved course work beyond the bachelor's degree and a minimum of 60 hours beyond a master's degree, perform satisfactorily on preliminary and qualifying examinations, and complete an original thesis with a public oral defense.

See STAT in the Courses of Instruction section.

SUBSURFACE GEOSCIENCE

THE WIESS SCHOOL OF NATURAL SCIENCES

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LECTURER

W. C. Rusty Riese

FACULTY FELLOW

Kristen M. Kulinowski

DEGREES OFFERED: MS

Rice University introduced a professional master's degree in subsurface geoscience in fall 2003. This degree is designed for students who wish to become proficient in applying geological knowledge and geophysical methods to finding and developing reserves of oil and natural gas. Students can specialize in one of three focus areas: information technology, geology, and geophysics. The information technology focus area prepares students to apply IT principles to the rapidly growing industry need to store, access, and interpret very large and diverse geological, geophysical, cultural, and infrastructural datasets. The geology focus area prepares students to be explorationists, with strong skills in using seismic and other geophysical methods along with geological principles to find oil and natural gas. The geophysics focus area prepares students to become technical experts in aspects of exploration seismology.

The subsurface geoscience degree is one of three tracks in the new Professional Master's Program at Rice housed in the Wiess School of Natural Sciences. These master's degrees are designed for students seeking to gain further scientific core expertise coupled with enhanced management and communication skills. These degrees instill a level of scholastic proficiency that exceeds that of the bachelor's level, and they create the cross-functional aptitudes needed in modern industry. This program will allow students to move more easily into management careers in consulting or research and development, design, and/or marketing of new science-based products.

DEGREE REQUIREMENTS FOR MS IN SUBSURFACE GEOSCIENCE

In addition to core science courses, students are required to complete a three- to six-month internship and take a set of cohort courses focusing on business and communication. Students select a group of elective courses from one of three focus areas: geology, geophysics, or information geology. Students must present their internship project in both oral and written form in the Professional Master's Seminar.

Part-time students who already work in their area of study may fulfill the internship requirement by working on an approved project with their current employer. For

general university requirements for graduate study, see pages 56-61, and see also Professional Degrees, page 58.

ADMISSION

Admission to graduate study in subsurface geoscience is open to qualified students holding a bachelor's degree in science that includes coursework in general chemistry, physics, calculus, differential equations, and linear algebra. Department faculty evaluate the previous academic record and credentials of each applicant individually.

Science core courses:

ESCI 441 Geophysical Data Analysis (F)
 ESCI 442 Exploration Geophysics I (F)
 ESCI 417 Petroleum Industry Economics and Management (S)
 ESCI 444 Exploration Geophysics II (S)
 ESCI 445 Modern Industrial Exploration Techniques (S)

Cohort courses:

MGMT 750 Management in Science and Engineering (F)
 NSCI 501 Professional Master's Seminar (F, S) [required for **two** semesters]
 NSCI 511 Science Policy and Ethics (S)

INTERNSHIP

An internship under the guidance of a host company, government agency, or national laboratory. A summary of the internship project is required in both oral and written form as part of the Professional Master's Seminar.

ELECTIVE COURSES

NOTE: Each of these electives is not offered every year, and some courses may have prerequisites or require instructor permission.

Students will choose five electives, three of which should be chosen from one of the focus areas listed below. Recommended courses for each focus area include, but are not limited to, the following:

Information Technology

COMP 429 *Introduction to Computer Networks* (S)
 ESCI 454 *Geographic Information Science* (F)
 STAT 310 *Probability and Statistics* (F, S)
 STAT 410 *Introduction to Statistical Computing and Computer Models* (F, S)

Geology Focus Area

ESCI 415 *Petroleum Geology* (S)
 ESCI 427 *Seismic Sequence Stratigraphy* (S)
 ESCI 428 *Interpretation of Reflection Seismograms* (F)
 ESCI 450 *Remote Sensing* (S)
 ESCI 463 *Advanced Structural Geology* (F)
 ESCI 504 *Siliciclastic Depositional Systems* (F)
 ESCI 505 *Applied Sedimentology* (F)
 ESCI 506 *Carbonate Depositional Systems* (S)

Geophysics Focus Area

CENG 571 *Flow and Transport through Porous Media I* (S)

ESCI 427 *Seismic Sequence Stratigraphy* (S)
 ESCI 428 *Interpretation of Reflection Seismograms* (F)
 ESCI 454 *Geographic Information Science* (F)
 ESCI 461 *Seismology I* (F)
 ESCI 542 *Seismology II* (F)
 STAT 310 *Probability and Statistics* (F, S)

Additional Electives

CAAM 378 *Introduction to Operations Research* (F)
 ECON 486 *Energy Economics* (S)
 CEVE 322 *Engineering Economics for Engineers* (F)
 MGMT 617 *Managerial Decision Making* (S)
 MGMT 636 *Systems Analysis and Database Design*
 MGMT 661 *International Business Law* (S)
 MGMT 674 *Production and Operations Management* (F)

MGMT 676 *Project Management/Project Finance* (S)

MGMT 721 *General Business Law* (S)

MGMT 751 *New Venture Creation for Science and Engineering* (S)

THE PROGRAM FOR THE STUDY OF WOMEN AND GENDER

DIRECTOR AND ADVISER

Lynne Huffer

PROFESSORS

Peter C. Caldwell

Jane Chance

Marcia J. Citron

Margret Eifler

James D. Faubion

Beatriz González-Stephan

Lynne Huffer

Anne C. Klein

Susan Keech McIntosh

Helena Michie

Deborah Nelson-Campbell

Robert L. Patten

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Ewa M. Thompson

ASSOCIATE PROFESSORS

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Elias K. Bongmba

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Katharine M. Donato

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Eugenia Georges

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Colleen R. Lamos

Caroline F. Levander

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William B. Parsons

Nanxiu Qian

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Julie M. Taylor

Sarah Westphal

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ASSISTANT PROFESSORS

Regina Branton

Marcia Brennan

Krista Comer

Elizabeth Dietz

Sarah Ellen Zweig

Bridget K. Gorman

Holly Heard

Michelle R. Hebl

Nancy A. Niedzielski

Kirsten Ostherr

Sherrilyn Roush

Elora Shehabuddin

Allison Sneider

Rachel Zuckert

PROFESSOR OF THE PRACTICE

Diana L. Strassmann

LECTURER

Thad Logan

DEGREES OFFERED: BA AND GRADUATE CERTIFICATE

Both the undergraduate major and the graduate certificate program take an interdisciplinary approach in their exploration of women's experiences and the role that ideas about sexual differences have played in human societies. Areas of inquiry include women's participation in social and cultural production; the construction of gender roles and sexuality; the relationship between ideas about gender and concepts inherent in other social, political, and legal structures; and the implications of feminist theory for philosophical and epistemological traditions. Students acquire an understanding of how adopting gender as a significant category of analysis challenges existing disciplines. They also gain proficiency in the methods used to study and compare cultural constructions of gender and sexuality, and they become familiar with the ongoing fundamental debates in women's and gender studies.

DEGREE REQUIREMENTS FOR BA IN THE STUDY OF WOMEN AND GENDER

For general university requirements, see Graduation Requirements in this publication. Students majoring in the study of women and gender must complete:

- 36 semester hours of departmental course work (30 hours if this is a second major)
- WGST 101 Introduction to the Study of Women and Gender or WGST 201 Introduction to Lesbian, Gay, Bisexual, and Transgender Studies
- WGST 499 and WGST 500 (capstone courses in fall and spring respectively)
- At least one approved non-Western studies course
- At least one approved critical race studies course
- At least one approved theory course

Of the remaining required courses, no more than four (4) courses may be from a single department. All students must work out their individual courses of study with their faculty advisers. Each student's course of study must be approved by the director of the major. Major tracking forms are available in the SWG office for declared SWG majors.

The following courses are among those that can be used to fulfill requirements for the major. As course offerings may vary from year to year, students are urged to consult with their faculty advisers or with the director at the beginning of each semester.

Please note that not all courses listed below will be offered during the academic year. For a current list of courses that will be offered in fall 2004 and spring 2005, please visit the SWG web site at <http://swg.rice.edu>.

I. Courses that Satisfy the Core Requirements

WGST 101 *Introduction to the Study of Women and Gender*

WGST 201 *Introduction to Lesbian, Gay, Bisexual, and Transgender Studies*

WGST 498 *Research in the Study of Women and Gender (F)*

WGST 499 *Research in the Study of Women and Gender (S)*

II. Courses that Satisfy the Non-Western Studies Requirement

WGST 210 *Islam and Politics*

WGST 240 *Gender and Politicized Religion*

WGST 250 *International Political Economy of Gender*

WGST 283 *Women in the Modern Islamic World*

WGST 323 *The Knowing Body: Buddhism, Gender, and the Social World*

WGST 328 *Latin American Genders*

WGST 340 *Gender and Politicized Religion (enriched version)*

WGST 399 *Women in Chinese Literature*

WGST 432 *Islam in South Asia*

WGST 455 *Women and Gender in Medieval Islam*

III. Courses that Satisfy the Critical Race Studies Requirement

WGST 234 *U.S. Women's History I: Colonial Beginnings to the Civil War*

WGST 235 *U.S. Women's History II: Civil War to the Present*

WGST 370 *Survey of African American Literature*

WGST 387 *Cultural Studies: Race, Gender, and the Politics of Representation*

WGST 387 *Cultural Studies*

WGST 415 *Sociolinguistics*

WGST 453 *Topics in African American Literature: Black Women Writers*

WGST 468 *Women and the U.S. Welfare State: Sexual Politics and American Poverty*

IV. Courses that Satisfy the Theory Requirement

WGST 303 *Women's Stories and Legal Change*

WGST 339 *Feminist Philosophy*

WGST 391 *Producing Feminist Knowledge: Methodology and Visual Culture*

WGST 395 *Feminist Knowledges*

WGST 430 *Queer Theory*

WGST 434 *French Feminist Theory*

WGST 460 *Feminist Social Thought*

WGST 480 *Feminist Literary Theory*

WGST 482 *Problems in Contemporary Feminist Theory*

V. Other Courses

WGST 205 *Language and Society*
 WGST 220 *Gendered Perspectives on the Law*
 WGST 225 *Women in Greece and Rome*
 WGST 300 *Medieval Women Writers*
 WGST 301 *Arthurian Literature*
 WGST 305 *Chaucer*
 WGST 317 *Mapping German Culture: Women and National Socialism*
 WGST 319 *French and Francophone Women Writers*
 WGST 324 *Sociology of Gender*
 WGST 325 *Sociology of the Family*
 WGST 327 *Third Wave Feminist Cultures*
 WGST 328 *Latin American Genders*
 WGST 329 *Literature and Culture of the American West*
 WGST 330 *Mapping German Culture: Courtship, Love, and Marriage in the Age of Chivalry*
 WGST 331 *The Psychology of Gender*
 WGST 332 *Self, Sex, and Society in Ancient Greece*
 WGST 333 *Masculinities*
 WGST 335 *The Lifecycle: A Biocultural View*
 WGST 336 *History as a Cultural Myth*
 WGST 341 *Gender and Politics*
 WGST 348 *Subjectivity in Modern and Postmodern Art and Thought*
 WGST 349 *Women Writers: 1400-1900*
 WGST 350 *Gender and Symbolism*
 WGST 358 *Mapping German Culture: European Women Filmmakers*
 WGST 365 *Gender, Subjectivity, and the History of Photography*

WGST 366 *Topics in American Literature*
 WGST 367 *American Ecofeminism*
 WGST 368 *Mythologies*
 WGST 369 *Seminar on Beauty and Fragmentation in Modern Art*
 WGST 372 *Survey of Victorian Fiction*
 WGST 389 *Generation X in Literature and Culture*
 WGST 390 *Hispanic Cinema*
 WGST 400 *Constructing Identities in Modern Fiction*
 WGST 405 *Austen Only*
 WGST 410 *The Literary and Historical Image of the Medieval Woman*
 WGST 412 *Women and Women's Voices in French Literature*
 WGST 420 *Women and Gender in 19th-Century Europe*
 WGST 422 *Feminist Economics*
 WGST 442 *Women in Russian Literature*
 WGST 448 *Disease and Difference: The Body in Visual Culture*
 WGST 462 *20th-21st-Century American Literary Studies*
 WGST 465 *Gender and Health*
 WGST 470 *Sex, Sanctity, and Psychoanalysis*
 WGST 485 *Gender and Hollywood Cinema in the 1950s*
 WGST 495 *Independent Study*
 WGST 496 *Applied Women's and Gender Studies*
 WGST 497 *Directed Reading*
 WGST 498 *Research in the Study of Women and Gender (F)*
 WGST 499 *Research in the Study of Women and Gender (S)*

REQUIREMENTS FOR GRADUATE CERTIFICATE IN THE STUDY OF WOMEN AND GENDER

The graduate certificate program in the Study of Women and Gender (SWG) is designed to provide interdisciplinary training in the field of women and gender studies to students pursuing a PhD degree at Rice University. Students who have been admitted into a PhD program are eligible to apply to the SWG graduate certificate program. The SWG graduate certificate is not a free-standing degree program; in addition to fulfilling the SWG requirements outlined below, candidates will be required to successfully complete the PhD program into which they have been admitted in order to receive the graduate certificate in SWG. Further information is available on request from the SWG program. For PhD requirements, see the relevant department. For general university requirements, see Graduate Degrees (pages 57-58).

The program awards graduate fellowship stipends, within the limits of available funds, to certificate students during the prospectus-writing semester. Although timelines

vary depending on the student's home department, this semester normally occurs during the semester following the completion of coursework and before passing the qualifying examinations in the PhD program. During the prospectus-writing semester graduate certificate students will be enrolled in WGST 502 "Gender, the Disciplines, and Interdisciplinarity." Graduate certificate students will be eligible to work as teaching assistants for an SWG undergraduate core or cross-listed course, or in some cases, to teach a course of their own upon approval of the Steering Committee.

For the graduate certificate in SWG, candidates must complete:

- 9 credit hours of courses in SWG, including two core courses (WGST 501 and WGST 502) and one cross-listed elective course (see list of approved courses below)
- 3 non-credit hours for participation in annual colloquium

SWG certificate students are strongly encouraged to include a member of the SWG faculty on their dissertation committee, and to consult regularly with the faculty member as they pursue their dissertation work.

The following courses are those that can be used to fulfill requirements for the graduate certificate. In most cases, students will be able to complete these requirements within the normal time limits for coursework in their PhD program. All students must work out their individual courses of study with the SWG Director and the graduate adviser in their home department. Each student's course of study must be approved by the SWG Director. Please note that not all courses listed below will be offered during the academic year. For a current list of courses that will be offered in fall 2004 and spring 2005, please visit the SWG web site at <http://swg.rice.edu>.

I. Courses that Satisfy the Core Graduate Certificate Requirements

WGST 501 Feminist Debates

WGST 502 Gender, the Disciplines, and Interdisciplinarity

II. Courses that Satisfy the Cross-listed Elective Course Requirement

WGST 505 Courtly Love in Medieval France

WGST 510 The Literary and Historical Image of the Medieval Woman

WGST 520 Shakespeare and Difference

WGST 522 Feminist Economics

WGST 523 Directed Reading in Women's and Gender History

WGST 525 Society in Ancient Greece

WGST 534 French Feminist Theory

WGST 542 Victorian Fiction

WGST 545 Women and Gender: Europe and Beyond

WGST 546 20th-Century British Literature

WGST 551 U.S. Women's History

WGST 561 Modern French Sexualities

WGST 576 Topics in U.S. Women's History

WGST 577 Buddhism, Gender, Society

WGST 580 Sex, Sanctity, and Psychoanalysis

WGST 581 Cultural Studies

WGST 585 Postcolonialism and After

III. Annual Colloquium Requirement

Graduate certificate students will participate in a colloquium involving a series of four speakers over the course of a year, to be offered annually at Rice and organized by SWG. Colloquium attendance by graduate certificate students constitutes an official requirement for the certificate. Colloquium topics will be determined by the SWG Steering Committee with a view to highlighting emerging knowledge in the field of women's studies. The colloquium will provide graduate students with the opportunity to engage in sustained intellectual exchange with leading women's studies scholars and to participate in cutting edge work in the field.

UNIVERSITY COURSES

University courses provide opportunities for dialogue across disciplinary and departmental boundaries. They are an experiment in curriculum development, directed toward students interested in interdisciplinary subjects beyond their elected major.

See UNIV in the Courses of Instruction section.

VISUAL ARTS

THE SCHOOL OF HUMANITIES

CHAIR

Karin Broker

PROFESSORS

Karin Broker

Basilios N. Poulos

George Smith

Geoff Winningham

ASSOCIATE PROFESSORS

Brian M. Huberman

Darra Keeton

John Sparagana

ARTIST TEACHER

Gary Feuge

Paul Hester

Prince Thomas

DEGREES OFFERED: BA, BFA

Department of Visual Arts majors are students who declare a major in the studio arts (drawing, digital video and film production, painting, photography, printmaking, or sculpture). Each student will discuss with the faculty advisor the selection of courses and any other matters of concern in the student's academic life, such as study and travel abroad, scholarships and internships, career goals or options, etc.

DEGREE REQUIREMENTS FOR BA IN VISUAL ARTS

For general university requirements, see Graduation Requirements (pages 14-15).

Single Major Track in Visual Arts (12 courses required)

ARTV 225 *Drawing I*

ARTV 205 *Photography I* or ARTV 311 *Intaglio I*
or ARTV 327 *Documentary Production*

ARTV 301 *Painting I* or ARTV 325 *Life
Drawing* or ARTV 337 *Color Drawing*
or ARTV 425 *Advanced Drawing*

ARTV 365 *Sculpture I*

6 ARTV electives

2 courses in art history (HART)—open
selections qualified by course prerequisites and
consultation with the studio art faculty adviser

Double Major Track in Visual Arts (10 courses required)

ARTV 225 *Drawing I*

ARTV 205 *Photography I* or ARTV 311 *Intaglio I*
or ARTV 327 *Documentary Production*
or ARTV 365 *Sculpture*

ARTV 301 *Painting I* or ARTV 325 *Life
Drawing* or ARTV 337 *Color Drawing*
or ARTV 425 *Advanced Drawing*

5 ARTV electives

2 courses in art history (HART)—open
selections qualified by course prerequisites and
consultation with the studio art faculty adviser

DEGREE REQUIREMENTS FOR THE BACHELOR OF FINE ARTS (BFA)

Students with a BA degree in art from Rice or an equivalent degree from another university may apply for admission to the Bachelor of Fine Arts (BFA) program, which consists of a fifth year of intensive study in the creative arts. Students with a BA in a major other than art may, in exceptional cases, be admitted. Interested students should complete a special degree application in the Admissions Office and submit a portfolio of artwork for review by department faculty. Students will not be admitted into the program until after the portfolio review process. Information about application forms, deadlines, and admission standards is available from the Admissions Office.

For the BFA degree, students must complete 30 semester hours in approved courses, or the equivalent in approved major electives at the 300 level or above. In addition to the usual departmental upper-level courses, special 500-level courses are offered for BFA candidates only.

TRANSFER CREDIT

No more than 2 courses may be transferred out of 10 for a single visual arts major, or 8 for the double major. The 2 transfer credit courses must be studio practice courses required for all majors. Advanced placement credit may not be used by art majors to fulfill department requirements. The 2 required art history classes may be transfer credits.

EXHIBITIONS AND ARTS PROGRAMS AT RICE

The Department of Visual Arts mounts several art and photography exhibitions each year and sponsors Rice Cinema, a public alternative film program. Feature films include classic and contemporary titles, independent and experimental films, documentaries, international, foreign, and alternative cinema programs. Rice Cinema, which is intimately connected with the curriculum both in film and media studies and in film and photography production, hosts frequent guest lecturers, panel discussions, and media events.

Exhibitions and related activities organized by Rice University Art Gallery (Kimberly Davenport, director) enrich the teaching program of the Department of Visual Arts as well as the larger university and Houston community.

See ARTV and HART in the Courses of Instruction section.

COURSES OF INSTRUCTION



COURSES OF INSTRUCTION

The course list printed in this catalog is current as of April 1, 2004. For the up-to-date list, please visit:

<http://webapps2.rice.edu/esther.html>

ACCO (ACCOUNTING)

Jones School of Management/Management

ACCO 305 INTRODUCTION TO ACCOUNTING (3)

Introduction to Accounting

Survey of basic accounting theory and practice with emphasis on the primary problems of asset valuation and income determination. Not open to first-year students (freshmen). Enrollment limited to 65. Instructor(s): *Zeff*

ACCO 406 MANAGEMENT ACCOUNTING (3)

Cost Accounting

Uses of accounting data to plan and evaluate long-run investment and financing decisions and short-run price, costing, output, and financing decisions of the business firm or public entity.

ACCO 497 INDEPENDENT STUDY (3)

Independent Study

Independent study on an approved project under faculty supervision.

ACCO 498 INDEPENDENT STUDY (3)

Independent Study

See ACCO 497.

AFSC (AIR FORCE SCIENCE)

101 FOUNDATION OF THE USAF I(2)

Foundation of the USAF I

Overall roles and missions of the USAF; career fields available. Emphasis on military customs and courtesies, appearance standards, core values, written and personal communications. Introduction to American military history.

102 FOUNDATION OF THE USAF II(2)

Foundation of the USAF II

(Continuation of AFSC 101)

201 EVOLUTION OF AIR POWER I(2)

Evolution of Air Power I, II

Key historical events and milestones in the development of air power as a primary instrument of United States national security. Core values and competencies of leaders in the United States air power. Tenets of leadership and ethics.

202 EVOLUTION OF AIR POWER II (2)

Evolution of Air Power II

(Continuation of AFSC 201)

301 AIR FORCE LEADERSHIP STUDIES I(3)

Air Force Leadership Studies I

Leadership, management fundamentals, professional knowledge, Air Force personnel and evaluation systems, and leadership ethics. Case studies of Air Force leadership and management situations.

302 AIR FORCE LEADERSHIP STUDIES II (3)

Air Force Leadership Studies II

(Continuation of AFSC 301)

401 NATIONAL SECURITY AFFAIRS I(3)

National Security Affairs I

Evolution of the role of national security in a democratic society with emphasis on policy formation, competing values, and organization. Civilian control of the military; roles of the services; functions of the Air Force Commands.

402 NATIONAL SECURITY AFFAIRS II (3)

National Security Affairs II

(Continuation of AFSC 401)

ANTH (ANTHROPOLOGY)

School of Social Sciences/Anthropology

ANTH 200 INTRO TO STUDY OF LANGUAGE (3)

Introduction to the Scientific Study of Language

Overview of the scientific study of the structure and function of language. Introduces the main fields of linguistics: phonetics, phonology, morphology, syntax, semantics, discourse, historical linguistics, sociolinguistics, and psycholinguistics. Highlights the interdisciplinary relationship of linguistics with anthropology, sociology, psychology, and cognitive sciences. Also offered as LING 200. Instructor(s): *Staff*

(#) = credit hours per semester

ANTH 201 SOCIAL/CULTURAL ANTHROPOLOGY (3)**Introduction to Social/Cultural Anthropology**

Introduction to the history, methods, and concepts of social/cultural anthropology, which is devoted to the systematic description and understanding of cultural diversity in human societies. Instructor(s): *Georges*

ANTH 203 INTRO TO PHYSICAL ANTHROPOLOGY (3)**Human Antiquity: An Introduction to Physical Anthropology and Prehistory**

This course offers a broad introduction to the human past as revealed by evolutionary studies of both biochemical and fossil evidence, and by archaeological studies of human cultural behavior. Instructor(s): *McIntosh, S*

ANTH 205 INTRO TO ARCHAEOLOGY (3)**Introduction to Archaeology**

An introduction to the elementary concepts of the discipline through a series of case studies. Instructor(s): *McIntosh, R.*

ANTH 235 NANOTECH: CONTENT AND CONTEXT (3)**Nanotechnology: Content and Context**

Nanotechnology is science and engineering resulting from the manipulation of matter's most basic building blocks: atoms and molecules. This course is designed for humanities and science students who want to explore the content of nanotechnology, (e.g., the methods of visualization, experimentation, and manufacture, and technical feasibility) with the social context of nanotechnology (issues of ethics, regulation, risk assessment, history, funding, intellectual property, controversy, and conflict). Preference will be given to freshmen and sophomore students. Register for CHEM 235 to receive Group 3 distribution credit; register for ANTH 235 to receive Group 2 distribution credit. Also offered as CHEM 235 Enrollment limited to 40. Instructor(s): *Kulinowski, Kelly*

ANTH 280 ANTHROPOLOGY: THE MIDDLE EAST (3)**Anthropology of the Middle East**

This course provides an introduction to and critical examination of the extensive ethnographic literature written by sociocultural anthropologist on the peoples and cultures of the Middle East (including North Africa). Major themes of this literature are reviewed and analyzed, and current trends are studied by reading recent works. Instructor(s): *Staff*

ANTH 290 HISTORY AND ETHNOGRAPHY (3)**The History and Ethnography of the (to be named)**

This course focuses intensively on the history and ethnography of a single people, the selection of which changes from year to year. Using all available materials, this course provides an introduction to the approaches of the discipline and how they have changed, registered by the different ways anthropologists and others have represented the same subjects over time. Instructor(s): *Marcus*

ANTH 298 BIOTECHNOLOGY, 1900 TO NOW (3)**Biotechnology, 1900 to Now**

The technical manipulation of living matter from humans, animals and plants is both a scientific and a social undertaking. This course is designed for humanities and science students who want to know more about how biotechnology came into existence, and the questions, controversies and changes which come with the ability to engineer living things. A series of case studies of contemporary events in cloning, patenting, genetically modified organisms, and stem cell research will be set in the context of the 20th century history of biotechnology. Instructor(s): *Staff*

ANTH 300 LINGUISTIC ANALYSIS (3)**Linguistic Analysis**

A hands-on, data-oriented approach to how different languages construct words and sentences. Students will develop skills in linguistic problem solving and the foundations for pursuing grammatical description. Topics: word classes, morphology, tense-aspect-modality, clause structure, word order, grammatical relations, existentials/possessives/locatives, voice/valence, questions, negation, relative clauses, complements causatives. Prerequisite(s): ANTH 200 Also offered as LING 300. Instructor(s): *Staff*.

ANTH 301 PHONETICS (3)**Phonetics**

Introductory study of sound as it relates to speech and sound systems in the world's languages. Speech sounds are examined in terms of production mechanisms (articulatory phonetics), propagation mechanisms (acoustic phonetics), and perception mechanisms (auditory phonetics). Includes a basic introduction to Digital Signal Processing. Prerequisite(s): ANTH 200 or permission of instructor. Also offered as LING 301. Instructor(s): *Staff*.

ANTH 305 HISTORICAL LINGUISTICS (3)**Historical Linguistics**

Exploration of the nature of language change in its phonological, morphological, syntactic, semantic, and socio-cultural aspects, using the perspective of language acquisition. Includes techniques of internal and comparative reconstruction of proto-languages. Required for linguistic majors; may substitute LING 315. Prerequisite(s): LING 200, 300, or 301. Also offered as LING 305. Instructor(s): *Staff*.

(F) = Fall; (S) = Spring

ANTH 306 HIST OF ANTHROPOLOGICAL IDEAS (3)**History of Anthropological Ideas**

An introduction to the history of anthropology, its theories, and methods. The emphasis is upon social and cultural anthropology. Instructor(s): *Faubion*

ANTH 307 ANTHROPOLOGICAL DIRECTIONS (3)**Anthropological Directions from the Second World War to the Present**

A sequel to ANTH 306/506, the course explores turns and trends in sociocultural research and critique during the past half-century. Special attention is paid to the rise and fall of structuralism, the problematization of "the primitive," and the proliferation of theories of "practice". Instructor(s): *Faubion*.

ANTH 308 HISTORY AS A CULTURAL MYTH (3)**History as a Cultural Myth**

Explores ideas of history and attitudes toward the past as culturally conditioned phenomena. Emphasizes history as a statement of cultural values as well as conceptualizations of cause, change, time, and reality. Also offered as WGST 336. Instructor(s): *Taylor*.

ANTH 309 GLOBAL CULTURES (3)**Global Cultures**

This course will examine specific cultural debates and issues that have "overflowed" national boundaries. Topics will include student movements, democracy and citizenship, and the internationalization of professional and popular culture. Instructor(s): *Staff*

ANTH 310 CONTEMPORARY CHINESE CULTURE (3)**Contemporary Chinese Culture**

This introductory course is designed to encourage ways of thinking about: Cultural China--a broad-ranging concept that includes the People's Republic of China, the newly established Special Administrative Region (SAR) of Hong Kong, the Republic of China on Taiwan, and overseas Chinese communities throughout the world. Also offered as ANTH 220, HIST 220, and HIST 310. Instructor(s): *Staff*.

ANTH 311 MASCULINITIES (3)**Masculinities**

This course deals with masculinities in the West, concentrating on concepts of masculine protagonism and personhood. Readings explore identities constructed in realms such as law, politics, finances, art, the home, and war. Also offered as WGST 333. Instructor(s): *Taylor*.

ANTH 312 AFRICAN PREHISTORY (3)**African Prehistory**

Thematic coverage of developments throughout the continent from the Lower Paleolithic to medieval times, with emphasis on food production, metallurgy and the rise of cities and complex societies. Instructor(s): *McIntosh, R.*

ANTH 313 LANGUAGE AND CULTURE (3)**Language and Culture**

Investigates the relation between language and thought, language and world view, language and logic. Also offered as LING 313. Instructor(s): *Tyler*.

ANTH 314 GENETICS: SCIENCE AND SOCIETY (3)**Genetics: Biological, Culture-Historical, And Ethical Perspectives**

The course uses an interdisciplinary perspective to examine the claims and counter-claims made regarding genetics and new technologies for identifying and manipulating genetic material. The course will cover biological basics of genes, DNA, and sequencing techniques; cultural and historical aspects of approaches to genetics, including essentialism and eugenics past and present; ethical issues arising from new genetic technologies; and policy issues. Also offered as UNIV 314 and BIOS 307. Instructor(s): *McIntosh, S., Landecker, Novotny*

ANTH 315 ANTH: INFORMATION & NETWORKS (3)**Introduction to the Anthropology of Information and Networks**

History and social study of information and network technologies. Thematic focus on communication, exchange, information/knowledge production and institutions of property and contract law. Empirical topics include networking technologies, money and financial institutions, free software and open source, cryptography, standards bodies, history of the internet, patents, copyright, trademark, and contract law. Includes North America, Europe, and South Asia. Instructor(s): *Kelty*.

ANTH 316 CULTURAL ANALYSIS (3)**Cultural Analysis**

This course is specifically intended for lower level undergraduates as a means of gaining familiarity with the analytical tradition of cultural anthropology from the beginning of the Twentieth Century. The course is intended to provide students with background for upper level courses in the department. Instructor(s): *Staff*.

(#) = credit hours per semester

ANTH 318 ANTHROPOLOGY & REPRESENTATION (3)**Graphing, Counting, Filming: Representation In Science and Anthropology**

Cinema originated in the inscription of physiology on film; this was quickly followed by biology, ethology and ethnology done by cinematography. This course examines the historical, critical and methodological relations between film as medium or method of visual investigation and cinema as site of cultural analysis. Also offered as HART 381. Instructor(s): *Landecker*

ANTH 319 SYMBOLISM AND POWER (3)**Symbolism and Power**

This course will use both traditional and contemporary readings to emphasize the trend in cultural analysis from a view of culture as monolithic and static to perceptions that any culture is internally varied and contradictory as well as changing and complex. Instructor(s): *Taylor*.

ANTH 320 PUBLIC SPHERES/CULTURES (3)**Public Spheres and Public Cultures**

This course will discuss some of the basic issues surrounding civil society and the public sphere. It will look at specific contemporary debates in public culture, such as multiculturalism, identity politics, and the crisis of contemporary liberalism. Instructor(s): *Staff*.

ANTH 321 TEXT AS PROPERTY (3)**Text As Property, Property As Text: Across the Ages**

Examines forms and norms of authorship and ownership from antiquity to the present. What is an author? Is a text public or private property? What are the licit/illicit forms of rewriting and appropriating a text, and how are those forms defined? This class investigates historically these and other issues. Also offered as CLAS 311. Instructor(s): *Kelty*.

ANTH 322 CULTURES AND IDENTITIES (3)**Cultures and Identities: Race, Ethnicity, and Nationalism**

How do cultural conceptions of race, ethnicity, and nationalism shape who we think we are? How are these ideas related to Western views of the relations between nature and society, and how do these differ from those in other cultures? Instructor(s): *Staff*.

ANTH 323 PHONOLOGY (3)**Phonology**

Introduction to sound patterns in the languages of the world and to interpretation of these patterns in four theoretical traditions: distribution of holistic segments (Phonemic Theory), process-oriented feature models (Generative and Autosegmental models), constraint-based models (Optimality Theory), and cognitive approaches (Natural Generative Phonology and Cognitive Phonology). Also offered as LING 311. Instructor(s): *Staff*.

ANTH 325 SOCIETY IN ANCIENT GREECE (3)**Sex, Self, and Society in Ancient Greece**

An introductory venture into conducting fieldwork in the past. The course treats a wide range of artifacts, from philosophical essays to vase paintings. It derives its focus from a rich corpus of recent research into the ancient problemization of desire and self-control. Also offered as WGST 332. Instructor(s): *Faubion*.

ANTH 326 THE ANTHROPOLOGY OF LAW (3)**The Anthropology of Law**

Social conflict and methods of dispute management in Western and non-Western societies. Comparison of legal institutions in band, tribal, early state, and complex industrial societies. Instructor(s): *Staff*.

ANTH 327 GENDER AND SYMBOLISM (3)**Gender and Symbolism**

Examinations of beliefs concerning men, women, and gender in different cultures, including the West, relating to issues of symbolism, power, and the distribution of cultural models. Also offered as WGST 350. Instructor(s): *Taylor*.

ANTH 328 TERROR AND SOCIAL TRAUMA (3)**Violence, Terror, and Social Trauma**

This course addresses the central place of violence in our society and its relations with social and political terror in other cultures. Readings, film, and theatre probe everyday violence as well as spectacular events of our times. Aftermath, including cross generational trauma, will be explored. Instructor(s): *Taylor*.

ANTH 329 BODIES, SENSUALITIES & ART (3)**Bodies, Sensualities and Art**

Cross-cultural approaches to art and the senses. Students may engage any medium. Emphasis to be placed on issues generated from performance in the arts rather than from academia. Contrasts art and academic knowledge to explore alternative epistemologies and aesthetics. Instructor(s): *Taylor*.

(F) = Fall; (S) = Spring

ANTH 335 ANTHROPOLOGY/CULTURAL CRITIQUE (3)**Anthropology As Cultural Critique**

The critical assessment and interpretation of Euroamerican social institutions and cultural forms have always been an integral part of anthropology's intellectual project. This course will explain the techniques, history, and achievements of such critique. It will also view the purpose in the context of a more generational tradition of critical social thought in the West, especially the U.S. Instructor(s): *Marcus*.

ANTH 338 READING POPULAR CULTURE (3)**Reading Popular Culture**

The course examines a number of cases from popular genres—romance, novels, television sit-coms, tourist sites, movies, rock music and submits them to a variety of theoretical approaches from disciplines such as anthropology, sociology, literary studies, and philosophy. Instructor(s): *Staff*.

ANTH 343 NEW RELIG MOVEMENTS IN AFRICA (3)**New Religious Movements in Africa**

Study of the religious, sociological, and political factors leading to the rise of religious movements in Africa, as well as missionary and colonial reactions to them. Includes the movements' relationship to indigenous religions, political praxis, and the focus on "this-worldly" salvation in light of political and economic marginality. Prerequisite(s): Permission of instructor required. Also offered as RELI 342. Instructor(s): *Bongmba*.

ANTH 344 CITY/CULTURE (3)**City/Culture**

The course treats both the theorization and the ethnographic exploration of the urban imaginary; urban spaces and practices; urban, suburban, and post-urban planning; city-states, colonial cities, and capital cities; and the late 20th century metropolis. Instructor(s): *Staff*.

ANTH 345 ARCHAEOLOGY IN SOCIAL CONTEXT (3)**The Politics of the Past: Archaeology in Social Context**

An examination of the way that archaeological evidence of the past has been used and viewed by particular groups at different times. Using case studies, the course considers issues of gender, race, Eurocentrism, political domination and legitimacy that emerge from critical analysis of representations of the past by archaeologists, museums, and collectors. Instructor(s): *McIntosh, S.*

ANTH 347 THE U.S. AS A FOREIGN COUNTRY (3)**The U.S. As a Foreign Country**

The course looks at selected aspects of American culture and society from an anthropological point of view. Readings derive from the works of both foreign and native observers, past and present. Instructor(s): *Faubion*.

ANTH 351 CULTURES OF NATIONALISM (3)**Cultures of Nationalism**

This course will examine the cultural dimensions of nationalism, particularly around the creation of forms of "peoplehood" that seem to be presupposed by almost all nation-building projects. Texts to be analyzed will include the Declaration of Independence, the United States Constitution, and the Declaration of the Rights to Man. Instructor(s): *Staff*.

ANTH 353 CULTURES OF INDIA (3)**Cultures of India**

Summary of the prehistory, ethnography, and ethnology of the Indian subcontinent. Special emphasis on Hinduism, Buddhism, and Indian philosophy. Instructor(s): *Tyler*.

ANTH 358 THE FOURTH WORLD (3)**The Fourth World: Issues of Indigenous People**

In contrast with people self-identified within political structures of the First, Second and Third Worlds, Fourth World peoples are, generally speaking, "stateless peoples". In this course we will examine both how this "unofficial" status affects their struggle for self-determination and how native peoples engage traditional beliefs and practices for self-empowerment. Through readings, films and speakers we will examine current conflicts facing indigenous people in North and South America, the Soviet Union, Europe, Asia, and Australia. Instructor(s): *Staff*.

ANTH 362 ARCHEOLOGICAL FIELD TECHNIQUES (3)**Archeological Field Techniques**

Methods used in field work, laboratory analysis, and interpretation of archaeological data from a local site excavated by the class. Prerequisite(s): ANTH 205. Instructor(s): *McIntosh, R.*

(#) = credit hours per semester

ANTH 363 EARLY CIVILIZATIONS (3)**Early Civilizations**

A comparative study of the civilizations of Mesopotamia, Egypt, the Indus, China, and the Maya, emphasizing the causes and conditions of their origins. Instructor(s): *McIntosh, R.*

ANTH 367 HUMAN EVOLUTION (3)**Human Evolution**

Covers the fossil evidence for the evolution of primates and hominids, insights into early hominid behavior from comparative studies in primate ecology and behavior, and how evolution has shaped contemporary human diversity and behavior. Prerequisite(s): ANTH 203 or BIOS 202 or BIOS 344. Instructor(s): *McIntosh, S.*

ANTH 368 PRIMATOLOGY (3)**Primatology**

An introduction to primate diversity, ecology, and sociality based on what is now known from field studies of wild primate populations. Instructor(s): *Nisbitt*

ANTH 371 MONEY AND EVERYDAY LIFE (3)**Money and Everyday Life**

Money is such a part of everyday modern life that it is hard for us to imagine living without it. Yet in many pre-modern societies, gift-exchange was as important as money is in our own. This course will look at the cultural dimensions of systems of exchange, ranging from gift-giving among Northwest Coast Indians to foreign currency exchanges between financial institutions. Along with the classic work of Marx and Simmel on money and capital, we will also cover some of the anthropological work on gifts and exchange, such as that of Mauss, Levi-Strauss, and Bourdieu, as well as some of the contemporary debates initiated by Bataille and Derrida. Instructor(s): *Staff.*

ANTH 372 CULTURES OF CAPITALISM (3)**Cultures of Capitalism**

Most of us think of capitalism as primarily an economic phenomenon. Yet, it also has a profoundly cultural dimension that includes culturally specific forms of risk taking, speculation, and even money and capital. This course will explore contemporary phenomenon such as speculation, booms and busts, and the stock market, and use them to discuss some of the classic work on the "cultures of capitalism", including Marx, Simmel, Kracauer, and contemporary writers such as Jameson, DeBord and Virillio. This is not an introductory course in economics but will look at how people talk and write about culture and capitalism. Instructor(s): *Staff.*

ANTH 373 THE LINGUISTIC TURN (3)**The Linguistic Turn: Language, Narration, and Modernity**

This course will look at the role of narration and the construction of some of the basic forms of modernity and post-modernity, ranging from nationalism to performative approaches to identity. The first half of the course will introduce the basic linguistic tools necessary to analyze a variety of cultural materials, and the second half will be devoted to analyzing specific texts and student presentations. The course does not presuppose any technical training in linguistic or literary analysis. Also offered as LING 373. Instructor(s): *Staff.*

ANTH 375 MEMORY IN SCIENCE & TECHNOLOGY (3)**Abacadabra: Language and Memory in Science and Technology**

The history of language, writing, and formal notational systems in science and technology. Includes ancient and renaissance arts of memory, universal languages and the development of the calculus, secret writing and cryptography, the graphical method, the rise of the 'scriptural' mode of DNA, the development and use of programming languages, psychoanalysis. No technical knowledge is assumed. Instructor(s): *Kelly.*

ANTH 379 GIFTS AND CONTRACTS (3)**Gifts and Contracts**

This course uses philosophical, literary, and economic approaches to examine the role that gifts and contracts play in everyday life and in constructing society and culture. Authors discussed include: Derrida, Marx, Mauss, David Lewis, Schelling, Von Neumann and Morgenstern. Instructor(s): *Staff.*

ANTH 381 MEDICAL ANTHROPOLOGY (3)**Medical Anthropology**

Cultural, ecological, and biological perspectives on human health and disease throughout the world. Enrollment limited to 30. Instructor(s): *Georges.*

ANTH 383 HUMAN ADAPTATION (3)**Human Adaptation**

Explanations for the range and patterns of human biological differences in the context of theories of adaptation. Integrates themes from human genetics, physiology, and cultural studies. Instructor(s): *Staff.*

(F) = Fall; (S) = Spring

ANTH 388 LIFE CYCLE: BIOCULTURAL VIEW (3)**The Life Cycle: A Biocultural View**

The human life cycle from conception to death. Focus is on the interaction between biological processes and culture. Also offered as WGST 335. Instructor(s): *Georges*.

ANTH 390 CULTURE, NARRATION & SUBJECTIVITY (3)**Culture, Narration, and Subjectivity**

This course examines how linguistic and narrative structures interact to produce specific cultures of interpretation. The focus will be on linguistic and literary representations of subjectivity. This course will use novels by Western authors, such as Virginia Woolf and Dostoevsky, and some Chinese materials as comparison. Instructor(s): *Staff*.

ANTH 395 CULTURES AND COMMUNICATION (3)**Cultures and Communication**

Investigates the relations between different forms of communication - speech, print, film and cultural constructions such as audiences, publics, and communities. Instructor(s): *Staff*.

ANTH 402 SYNTAX AND SEMANTICS (3)**Syntax and Semantics**

Study of semantic categories and their formal expression in morphological, syntactic, and lexical units and patterns. Also offered as LING 402. Instructor(s): *Staff*.

ANTH 403 ANALYZING PRACTICE (3)**Analyzing Practice**

A critical review of work informed by what has sometimes been deemed the "key concept" of anthropological theory and research since the 1960s. Special attention will be devoted to the analytics of practice developed by Foucault, by Bourdieu, and by de Certeau. Instructor(s): *Faubion*

ANTH 404 INDEPENDENT STUDY (HOURS VARIABLE)**Independent Study**

Directed reading and preparation of written papers on anthropological subjects not offered in the curriculum and advanced study of subjects on which courses are offered. Instructor(s): *Staff*

ANTH 406 COGNITIVE STUDIES (3)**Cognitive Studies in Anthropology and Linguistics**

Relations between thought, language, and culture. Special emphasis given to natural systems of classification and the logical principles underlying them. Also offered as LING 406. Instructor(s): *Tyler*.

ANTH 407 FIELD TECHNIQUES AND ANALYSIS (3)**Field Techniques and Analysis**

Techniques and practice in the observation, analysis, and recording of a human language. Includes discussion of ethical issues in working with indigenous peoples. ANTH 300, 301, and 402 recommended. Limited enrollment. Prerequisite(s): Permission of instructor. Course may be repeated for credit. Also offered as LING 407. Instructor(s): *Staff*.

ANTH 408 FIELD TECHNIQUES AND ANALYSIS (3)**Field Techniques and Analysis**

Continuation of ANTH 407/LING 407. Prerequisite(s): permission of instructor. Also offered as LING 408. Instructor(s): *Staff*.

ANTH 409 AUTHORSHIP AND OWNERSHIP (3)**Authorship and Ownership**

A course on the relations that bind persons to particular things or ideas as property. Looks at forms of ownership as embodied by patents, copyright, brand names and trademarks, and explores how such laws, marks and names functions as useful anthropological objects. Instructor(s): *Landecker*.

ANTH 410 THE ETHNOGRAPHY OF DEVELOPMENT (3)**The Ethnography of Development**

This course suggests the necessity of a solid ethnographic grounding for both practical development work and for further intellectual growth of the discipline. Offered occasionally. Instructor(s): *Staff*.

ANTH 411 NEUROLINGUISTICS (3)**Neurolinguistics**

Study of languages and the brain. Includes localization of pathologies of speech and language associated with brain speech, language, and memory functions, hemispheric dominance, pathologies of speech and language associated with brain damage, and hypotheses of the representation and operation of linguistic information in the cortex. Also offered as LING 411. Instructor(s): *Lamb*.

(#) = credit hours per semester

ANTH 412 RHETORIC (3)**Rhetoric**

Overview of classical theories. Intensive discussion of contemporary theories and applications in a wide variety of disciplines. Also offered as LING 410. Instructor(s): *Tyler*.

ANTH 414 HERMENEUTICS & LINGUISTIC ANTH (3)**Hermeneutics and Linguistic Anthropology**

Application of linguistic theory and method in the analysis of cultural materials. Includes discourse analysis and the structure and interpretation of texts and conversation. Also offered as LING 414. Instructor(s): *Tyler*

ANTH 415 MODERNITY/POSTMODERNITY (3)**Theories of Modernity/Postmodernity**

An advanced course for graduate students and undergraduate majors with interests in the interdisciplinary field of cultural studies. Readings in the work of Marx, Weber, and Durkheim, Saussure, Gadamer, Derrida, Bakhtin, Foucault, and others. Instructor(s): *Faubion*.

ANTH 418 CAN HUMANS THINK? (3)**Can Humans Think? Anthropolos, Humanism, and Technology**

An upper level reading and research seminar that combines readings in the history of humanism with empirical and theoretical issues from the present. Texts and topics from Kant to JCR Licklider on anthropolos and humanism, and examples from current debates: genetic engineering, environmentalism, interfaces and networking technologies, testing technologies, and intellectual property regimes. Emphasis on the three R's. Instructor(s): *Kelty*

ANTH 419 LAW AND SOCIETY (3)**Law and Society**

In addition to focusing on works associated with critical legal studies and its antecedent legal realism, the course will examine a number of cases in the international domain that challenge concepts of civil society arising with the modern nation-state. Instructor(s): *Staff*.

ANTH 423 AFRICAN MYTHS & RITUAL (3)**African Myths and Ritual**

Explore and analyze specific myths and rituals which provide legitimation for community ceremonies and that serve as a basis for the negotiation of power and ideology for members within that community. Readings from classic theorists: Durkheim, Levi-Struass, Edmond Leach, Gennap and Turner, and contemporary theorists: Werbner, Heusch, Comaroff, and Ray. Also offered as RELI 423. Instructor(s): *Bongmba*.

ANTH 425 ADVANCED TOPICS IN ARCHAEOLOGY (3)**Advanced Topics in Archaeology**

Seminar on selected topics in archaeological analysis and theory. The course will variously focus on ceramic analysis and classification, archaeological sampling in regional survey and excavation, and statistical approaches to data analysis and presentation. Prerequisite(s): ANTH 205 and 362. Instructor(s): *McIntoch, S.*

ANTH 430 EXPERIMENTAL WRITING (3)**Experimental Writing and Anthropology**

Explores relationships between ethnography and other genres. Emphasizes experimental styles, including combinations of ethnographic and personal material, and problems of writing to communicate experiences such as violence and art. Instructor(s): *Taylor*

ANTH 440 BIOTECHNOLOGY AND CULTURE (3)**Biotechnology and Culture**

This course focuses on anthropology of the life sciences. We will examine how this work takes contemporary bioscience as a site for cultural analysis, and also the allied proposals that this represents an opportunity to renovate classic anthropological analyses and categories of kinship, reproduction, the body, life, death and identity. Instructor(s): *Landecker*.

ANTH 446 ADV BIOMEDICAL ANTHROPOLOGY (3)**Advanced Topics in Biomedical Anthropology**

Seminar on contemporary research on the biomedical aspects of human health and disease. Includes topics from medical ecology and epidemiology. Prerequisite(s) ANTH 381 or permission of the instructor. Enrollment limited to 12. Instructor(s): *Georges*

ANTH 447 MODERN ETHNOGRAPHY (3)**Modern Ethnography and the Ethnography of Modernity**

The course explores the strategies of representation, the methodologies, and the diagnostic categories to which anthropologists have resorted in coming to terms with such phenomena as rationalization, economic and informational globalization, and the commodification of culture. Instructor(s): *Faubion*.

(F) = Fall; (S) = Spring

ANTH 450 ANTH IN CONTEMPORARY WORLD (3)**Anthropology in the Contemporary World: A Seminar for Majors**

This seminar is designed specifically for juniors and seniors who have declared anthropology as a major, and is intended as an opportunity for them to survey the various applications and points of relevance of anthropology in the rapid transformations of contemporary societies and cultures. It is meant to both assess and challenge the forms of knowledge that anthropology has produced since its inception as a discipline. Instructor(s): *Marcus*.

ANTH 455 SCIENCE AND TECHNOLOGY STUDIES (3)**Introduction to Science and Technology Studies**

Introduction to the historical and social aspects of science and technology. Directed towards providing social scientists ways to understand the role of science and technology in their field sites and research projects; with additional emphasis on the use of media and Internet technologies for qualitative social science research. Limited enrollment. Instructor(s): *Kelty*

ANTH 458 HUMAN OSTEOLOGY (3)**Human Osteology**

Introduction to the analysis of human skeletal material from archaeological sites. Instructor(s): *McIntosh, S.*

ANTH 460 ADVANCED ARCHAEOLOGICAL THEORY (3)**Advanced Archaeological Theory**

History and analysis of the major currents of archaeological theory from the encyclopaedist origins of positivism, through cultural evolutionism and historical particularism, to the New Archaeology and current trends. Prerequisite(s): ANTH 205. Instructor(s): *McIntosh, R*

ANTH 463 WEST AFRICAN PREHISTORY (3)**West African Prehistory**

Seminar providing in-depth consideration of the later prehistoric archaeology (late Stone Age and Iron Age) of the West African subcontinent. Instructor(s): *McIntosh, S.*

ANTH 468 PALAEOCLIMATE & HUMAN RESPONSE (3)**Palaeoclimate and Human Response**

Palaeoscientists have records extending through the Holocene of forcing processes, such as climate, that influence humans. We examine these records and their impact on past and present society. We explore the concept of social memory, used to understand how past communities use information about climate change and past responses in long term adaptive strategies. Also offered as ESCI 468. Instructor(s): *McIntosh, R., Droxler.*

ANTH 474 ADVANCED SEMINAR (3)**Advanced Seminar on the Prehistoric Landscape**

The interaction of human geography (cultural ecology) and the physical landscape (geomorphology and physical geography as applied to past and present settlement on major floodplains. Instructor(s): *McIntosh, R.*

ANTH 475 PLIO-PLEISTOCENE CLIMATE CHANG (3)**Plio-Pleistocene Climate Change and Hominid Adaptation**

Junctures in the evolution of the hominids appear to coincide with shifts in the earth's climate record. We will explore the current status of our knowledge of global climate in the Plio-Pleistocene and of the hominid record from the end of the Miocene to the appearance of *H. sapiens*. Also offered as ESCI 475. Instructor(s): *McIntosh, R., Droxler.*

ANTH 482 THIRD WORLD CINEMA (4)**Non-Western Cinema: Third World Cinemas**

Study of significant national cinemas, film movements, and filmmakers of the Third World from Africa to Latin America and from the Middle East to China. Includes colonial and postcolonial discourses. Limited enrollment. Also offered as HART 482. Instructor(s): *Naficy.*

ANTH 483 DOCUMENTARY AND ETHNOGRAPHIC (4)**Documentary and Ethnographic Film**

Overview of the history of documentary and ethnographic cinema from a worldwide perspective. Includes both canonical and alternative films and film movements, with emphasis on the shifting and overlapping of boundaries of fiction and nonfiction genres. Also offered as HART 483. Instructor(s): *Naficy.*

ANTH 484 EXILE & DIASPORA CINEMAS (4)**Culture, Media, Society: Exile and Diaspora Cinemas**

Examination of cultural productions as vehicles for communication across national, cultural, and other boundaries, using contemporary theories of culture and media. Includes the creation of meaning and cultural capital, the representation of minority and alternative views, and the construction of individual and group identities. Also offered as HART 484. Instructor(s): *Naficy.*

(#) = credit hours per semester

ANTH 490 DIRECTED HONORS RESEARCH (3)

Directed Honors Research

A two-semester sequence of independent research culminating in the preparation and defense of an honors thesis. Open only to candidates formally accepted into the honors program.

ANTH 491 DIRECTED HONORS RESEARCH (3)

Directed Honors Research

A two-semester sequence of independent research culminating in the preparation and defense of an honors thesis. Open only to candidates formally accepted in the honors program.

ANTH 506 HIST OF ANTHROPOLOGICAL IDEAS (3)

History of Anthropological Ideas

Graduate version of ANTH 306.

ANTH 507 ANTHRO FROM 2ND WW-PRESENT (3)

Anthropological Directions from Second World War to Present

Graduate version of ANTH 307.

ANTH 508 HISTORY AS CULTURAL MYTH (3)

History as Cultural Myth

Graduate version of ANTH 308.

ANTH 509 GLOBAL CULTURES (3)

Global Cultures

Graduate version of ANTH 309.

ANTH 511 MASCULINITIES (3)

Masculinities

Graduate version of ANTH 311.

ANTH 512 AFRICAN PREHISTORY (3)

African Prehistory

Graduate version of ANTH 312.

ANTH 513 LANGUAGE AND CULTURE (3)

Language and Culture

Graduate version of ANTH 313.

ANTH 515 ANTH:INFORMATION & NETWORKS (3)

Introduction to The Anthropology of Information and Networks

Graduate version of ANTH 315.

ANTH 518 ANTHROPOLOGY & REPRESENTATION (3)

Graphing, Counting, Filming: Representation in Science and Anthropology

Graduate version of ANTH 318.

ANTH 519 SYMBOLISM AND POWER (3)

Symbolism and Power

Graduate version of ANTH 319.

ANTH 520 PUBLIC SPHERES/CULTURES (3)

Public Spheres and Public Cultures

Graduate version of ANTH 320.

ANTH 522 CULTURES AND IDENTITIES (3)

Cultures and Identities: Race, Ethnicity, and Nationalism

Graduate version of ANTH 322.

ANTH 525 SOCIETY IN ANCIENT GREECE (3)

Sex, Self, and Society in Ancient Greece

Graduate version of ANTH 325.

ANTH 527 GENDER AND SYMBOLISM (3)

Gender and Symbolism

Graduate version of ANTH 327.

ANTH 528 TERROR AND SOCIAL TRAUMA (3)

Violence, Terror and Social Trauma

Graduate version of ANTH 328.

(F) = Fall; (S) = Spring

ANTH 529 BODIES, SENSUALITIES, AND ART (3)**Bodies, Sensualities, and Art**

Graduate version of ANTH 329.

ANTH 535 ANTHROPOLOGY/CULTURE CRITIQUE (3)**Anthropology as Cultural Critique**

Graduate version of ANTH 335.

ANTH 538 READING POPULAR CULTURE (3)**Reading Popular Culture**

Graduate version of ANTH 338.

ANTH 544 CITY/CULTURE (3)**City/Culture**

Graduate version of ANTH 344.

ANTH 545 ARCHAEOLOGY IN SOCIAL CONTEXT (3)**The Politics of the Past: Archaeology in Social Context**

Graduate version of ANTH 345.

ANTH 547 THE U.S. AS A FOREIGN COUNTRY (3)**The U.S. as a Foreign Country**

Graduate version of ANTH 347.

ANTH 551 CULTURES OF NATIONALISM (3)**Cultures of Nationalism**

Graduate version of ANTH 351.

ANTH 553 CULTURES OF INDIA (3)**Cultures of India**

Graduate version of ANTH 353.

ANTH 558 ISSUES OF INDIGENOUS PEOPLES (3)**The Fourth World: Issues of Indigenous Peoples**

Graduate version of ANTH 358.

ANTH 562 ARCHEOLOGICAL FIELD TECHNIQUES (3)**Archaeological Field Techniques**

Graduate version of ANTH 362.

ANTH 563 EARLY CIVILIZATIONS (3)**Early Civilizations**

Graduate version of ANTH 363.

ANTH 571 MONEY AND EVERYDAY LIFE (3)**Money and Everyday Life**

Graduate version of ANTH 371.

ANTH 572 CULTURES OF CAPITALISM (3)**Cultures of Capitalism**

Graduate version of ANTH 372.

ANTH 573 LANGUAGE, NARRATION, & MODERNITY (3)**The Linguistic Turn: Language, Narration, and Modernity**

Graduate version of ANTH 373.

ANTH 575 MEMORY IN SCIENCE & TECHNOLOGY (3)**Abracadabra: Language and Memory in Science and Technology**

Graduate version of ANTH 375.

ANTH 577 THE ANCIENT CITY (3)**The Ancient City**

Graduate version of ANTH 377.

ANTH 579 GIFTS AND CONTRACTS (3)**Gifts and Contracts**

Graduate version of ANTH 379.

(#)= credit hours per semester

ANTH 581 MEDICAL ANTHROPOLOGY (3)

Medical Anthropology

Graduate version of ANTH 381.

ANTH 583 HUMAN ADAPTATION (3)

Human Adaptation

Graduate version of ANTH 383.

ANTH 588 LIFE CYCLE: A BIOCULTURAL VIEW (3)

Life Cycle: A Biocultural View

Graduate version of ANTH 388.

ANTH 590 CULTURE, NARRATION & SUBJECTIVITY (3)

Culture, Narration and Subjectivity

Graduate version of ANTH 390.

ANTH 595 CULTURES AND COMMUNICATION (3)

Cultures and Communication

Graduate version of ANTH 395.

ANTH 600 INDEPENDENT STUDY (HOURS VARIABLE)

Independent Study

No description.

ANTH 601 PROSEMINAR IN ANTHROPOLOGY (3)

Graduate Proseminar in Anthropology

Mapping the current fields of anthropological discourses, examining the debates in and between each of these fields, and discussing how these debates are conducted in the domains of fieldwork, ethnographic writing, and in the construction of careers in anthropology.

ANTH 602 PROPOSAL WRITING SEMINAR (3)

Anthropology Proposal Writing Seminar

This seminar prepares anthropology graduate students to write a successful grant proposal. Basic elements of proposal writing, including problem conceptualization, literature reviews and methods will be covered.

Instructor(s): *Georges*

ANTH 603 ANALYZING PRACTICE (3)

Analyzing Practice

Graduate version of ANTH 403.

ANTH 605 FIELDWORK (4)

Fieldwork

Fieldwork in which students pursue ethnographic research, learn to manage information and create presentations using a variety of tools and technologies. Topics and themes change. Instructor(s): *Kelty*

ANTH 606 COGNITIVE STUDIES (3)

Cognitive Studies in Anthropology and Linguistics

Graduate version of ANTH 406.

ANTH 607 FIELD TECHNIQUES & ANALYSIS (3)

Field Techniques and Analysis

Graduate version of ANTH 407.

ANTH 608 FIELD TECHNIQUES AND ANALYSIS (3)

Field Techniques and Analysis

Graduate version of ANTH 408.

ANTH 609 AUTHORSHIP AND OWNERSHIP (3)

Authorship and Ownership

Graduate version of ANTH 409.

ANTH 610 THE ETHNOGRAPHY OF DEVELOPMENT (3)

The Ethnography of Development

Graduate version of ANTH 410.

ANTH 611 NEUROLINGUISTICS (3)

Neurolinguistics

Graduate version of ANTH 411.

(F) = Fall; (S) = Spring

ANTH 612 RHETORIC (3)**Rhetoric**

Graduate version of ANTH 412.

ANTH 614 HERMENEUTICS&LINGUISTIC ANTH (3)**Hermeneutics and Linguistic Anthropology**

Graduate version of ANTH 414.

ANTH 615 MODERNITY/POSTMODERNITY (3)**Theories of Modernity/Postmodernity**

Graduate version of ANTH 415.

ANTH 618 CAN HUMANS THINK? (3)**Can Humans Think? Anthropolos, Humanism, and Technology**

Graduate version of ANTH 418.

ANTH 619 LAW AND SOCIETY (3)**Law and Society**

Graduate version of ANTH 419.

ANTH 625 ADVANCED TOPICS IN ARCHAEOLOGY (3)**Advanced Topics in Archaeology**

Graduate version of ANTH 425.

ANTH 630 EXPERIMENTAL WRITING & ANTHRO (3)**Experimental Writing and Anthropology**

Graduate version of ANTH 430.

ANTH 640 BIOTECHNOLOGY AND CULTURE (3)**Biotechnology and Culture**

Graduate version of ANTH 440.

ANTH 646 ADV TOPIC BIOMEDICAL ANTHRO (3)**Advanced Topics in Biomedical Anthropology**

Graduate version of ANTH 446.

ANTH 647 MODERN ETHNOGRAPHY (3)**Modern Ethnography and the Ethnography of Modernity**

Graduate version of ANTH 447.

ANTH 650 PEDAGOGY (3)**Pedagogy**

Training in the basic elements of teaching in anthropology to be taken in conjunction with applied graduate student teaching in ANTH 316. Prerequisite(s): Third year and above graduate students.

ANTH 655 SCIENCE AND TECHNOLOGY STUDIES (3)**Introduction to Science and Technology Studies**

Graduate version of ANTH 455.

ANTH 658 HUMAN OSTEOLOGY (3)**Human Osteology**

Graduate version of ANTH 458.

ANTH 660 ADVANCED ARCHAEOLOGICAL THEORY (3)**Advanced Archaeological Theory**

Graduate version of ANTH 460.

ANTH 663 WEST AFRICAN PREHISTORY (3)**West African Prehistory**

Graduate version of ANTH 463.

ANTH 668 PALAEOCLIMATE & HUMAN RESPONSE (3)**Palaeoclimate and Human Response**

Graduate version of ANTH 468.

ANTH 674 ADVANCED SEMINAR (3)**Advanced Seminar on the Prehistoric Landscape**

Graduate version of ANTH 474.

(#) = credit hours per semester

ANTH 675 PLIO-PLEISTOCENE CLIMATE CHANG (3)**Plio-Pleistocene Climate Change And Hominid Adaptation**

Graduate version of ANTH 475.

ANTH 682 THIRD WORLD CINEMAS (HOURS VARIABLE)**Non-Western Cinema: Third-World Cinemas**

Graduate version of ANTH 482.

ANTH 683 DOCUMENTARY AND ETHNOGRAPIC (3)**Documentary and Ethnographic Film**

Graduate version of ANTH 483.

ANTH 684 EXILE & DIASPORA CINEMAS (4)**Culture, Media, Society: Exile and Diaspora Cinemas**

Graduate version of ANTH 484.

ANTH 800 RESEARCH AND THESIS (HOURS VARIABLE)**Research and Thesis****ARAB (ARABIC)****School of Humanities/Center for Study of Languages****ARAB 101 INTRO TO MODERN ARABIC I (5)****Introduction To Modern Arabic Language and Culture I**

This course introduces students to Modern Standard Arabic within the cultural context of the Arab world. Students will learn speaking, listening, reading and writing skills through communicative drills and conversation practice. Multimedia material is an integral part of the course. Students will attend a weekly practice hour with the instructor. Enrollment limited to 20. Prerequisite(s): No prior knowledge of Arabic. Instructor(s): *Attieb*

ARAB 102 INTRO TO MODERN ARABIC II (5)**Introduction to Modern Arabic Language and Culture II**

Using an interactive approach, students will expand on the four language skills, acquiring additional basic structures and vocabulary. The content will focus on their immediate environment and multiple aspects of the Arab world. Multimedia material is an integral part of the course. Students will attend a weekly practice hour with the instructor. Enrollment limited to 20. Prerequisite(s): ARAB 101, placement test, or permission of the instructor. Instructor(s): *Attieb*

ARAB 201 INTERMEDIATE MODERN ARABIC I (4)**Intermediate Modern Arabic Language and Culture I**

In this course, students will further their proficiency in reading, writing, speaking and listening, utilizing complex semantic and syntactic structures. Students will be encouraged to participate in discussions, discourse and analysis, featuring historical, geographic, and cultural topics specific to the Arab world. Multi-media are an integral part of the course. Enrollment limited to 20. Prerequisite(s): ARAB 102, placement test, or permission of the instructor. Instructor(s): *Attieb*

ARAB 202 INTERMEDIATE MODERN ARABIC II (4)**Intermediate Modern Arabic Language and Culture**

In this fourth course of the Arabic sequence, assignments and activities center on historical, geographic, social, and literary text as well as current issues in the Arab world. Students will acquire additional forms, structures and expressions that help them communicate their thoughts through discourse at the Intermediate High level. Enrollment limited to 20. Prerequisite(s): ARAB 201, placement test, or permission of the instructor. Instructor(s): *Attieb*

ARAB 301 SEMINAR IN ARABIC (3)**Seminar in Arabic**

Advanced readings and discussions focus on literary and cultural topics, ranging from classical to contemporary. Integrates advanced grammatical constructions with comprehension and communication skills. Enrollment limited to 20. Prerequisite(s): ARAB 202. Instructor(s): *Attieb*

ARAB 302 SEMINAR IN ARABIC (3)**Seminar in Arabic**

Advanced readings and discussions focus on various literary and cultural topics ranging from the classical to contemporary. The course integrates advanced grammatical constructions with comprehension and communication skills. Enrollment limited to 20. Prerequisite(s): Arabic 202, placement test, or permission of the instructor. Instructor(s): *Attieb*

(F) = Fall; (S) = Spring

ARAB 398 INDEPENDENT STUDY (HOURS VARIABLE)**Independent Study**Instructor(s): *Staff***ARAB 399 INDEPENDENT STUDY (HOURS VARIABLE)****Independent Study**Prerequisite(s): Permission of instructor. Enrollment limited to 20. Instructor(s): *Staff***ARCH (ARCHITECTURE)****School of Architecture / Architecture****ARCH 101 PRINCIPLES OF ARCHITECTURE I (4)****Principles of Architecture I**Visual studies using simple tools and materials to develop an awareness of the environment and a vocabulary to describe it. Requisite for architecture majors. Instructor(s): *Grenader*,**ARCH 102 PRINCIPLES OF ARCHITECTURE I (4)****Principles of Architecture I**A development of communication of formal information from further investigation of visual structures and their order. Requisite for architecture majors. Instructor(s): *Grenader, Samuels***ARCH 132 FRESH SEM ARCH ISSUES (2)****Freshman Seminar on Architectural Issues**Introductory tutorial. Readings, field trips, and seminar discussions. Exploration of the role of the architect and architecture in the metropolis. Instructor(s): *Casbarian***ARCH 201 PRINCIPLES OF ARCHITECTURE II (6)****Principles of Architecture II**Introduction to concepts of beginning architectural design. Design process as problem solving with emphasis on conscious method. Requisite for architecture majors. Instructor(s): *Oliver, Williams***ARCH 202 PRINCIPLES OF ARCH II (6)****Principles of Arch II**See ARCH 201. Instructor(s): *Wittenberg, Williams***ARCH 207 INTRO TO DESIGN OF STRUCTURES (3)****Introduction to Design of Structures**The course will introduce students to historical and contemporary structures through multi-media presentations, computer-based visualizations, field trips and hands-on experiments with materials of construction and physical models of structures. This is an introductory interactive course on the art and science of designing engineered structures and is intended for freshmen and sophomores interested in both civil engineering and architecture. Also offered as CEVE 207. Instructor(s): *Wittenberg***ARCH 214 DESIGN AND STRUCTURES II (3)****Design of Structures II**Application of materials & construction (wood, masonry, concrete & steel). Case studies & field trips. Instructor(s): *Oberholzer***ARCH 301 PRINCIPLES OF ARCHITECTURE III (6)****Principles of Architecture III**Intermediate level design problems with emphasis on building technology, programming and formal design. Requisite for paraprofessional major in architecture. Instructor(s): *Sight, Lally***ARCH 302 PRINCIPLES OF ARCHITECTURE III (6)****Principles of Architecture III**

Variety of intermediate level problems for developing comprehensive experience in design methods and processes. Requisite for paraprofessional major in architecture.

ARCH 303 SEM IN SUSTAINABLE ENVI ANALYS (1)**Seminar in Sustainable Environment Analysis**Engineering students will work with architecture students in analyzing basic design principles of sustainable design. Students analyses will be incorporated in the final design projects and culminate in a semester final report. Enrollment limited to 5. Instructor(s): *Cannady*Enrollment limited to 5. Instructor(s): *Cannady*

(#)= credit hours per semester

ARCH 311 HOUSTON ARCHITECTURE (3)**Houston Architecture**

This course consists of a series of illustrated lectures and walking tours that describe and analyze the architecture of Houston from the city's founding in 1836 to the present. Characteristic building types and exceptional works of architecture are identified; tours stimulate an awareness of the historical dimension of urban sites. Instructor(s): *Fox*

ARCH 313 SUSTAINABLE DESIGN (3)**Sustainable Architecture**

This course will explore sustainable design from initial sustainable facility concepts and team organizations, to enlisting community support and process assessment. The course will develop into details about sustainable design, lessons learned, processes and outcomes. Instructor(s): *Taylor*

ARCH 315 DESIGN OF STRUCTURES III (3)**Design of Structures III**

Application of principles of analysis to construction of steel & concrete framed structures. Continuation of ARCH 213, 214. Instructor(s): *Oberholzer*

ARCH 316 ENVIRONMENTAL CONTROL SYSTEMS (3)**Environmental Control Systems**

An introduction to the thermal performance of buildings. Course is divided into 2 parts: Building Climatology and Air Conditioning Systems. Instructor(s): *Oberholzer*

ARCH 317 LANDSCAPE&SITE STRATG HOUSTON (3)**Landscape and Site Strategies for Houston**

This course is a workshop in site planning, with Houston as its focus. It will allow students to gain practice assessing, cataloging, and communicating the many complex issues that go into plugging a building into a site. We will navigate the networks created by natural environments, the build and legal environments, and access. The final product of this course is a site plan. Enrollment limited to 15. Instructor(s): *Albert, Whiteherd*

ARCH 322 METHODS OF MAKING (3)**Methods of Making**

The intent of this class is to saturate the design process with direct experience, to make fabrication synonymous with design. The focus is on identifying and developing an awareness of the underlying principles manifest in joining materials. Instructor(s): *Guthrie*

ARCH 325 WHAT IS ISLAMIC ART? (3)**What Is Islamic Art?**

This seminar is a critical examination of key themes and issues in Islamic art. Based on readings that focus on specific examples of artistic and architectural production of major landmarks from the 7th to the 18th centuries our discussions will evolve around such questions as: What is Islamic about Islamic art? How and where did art, religion, and politics intersect? To what extent were art and architecture informed by religious principles, practices, and rituals? Can we speak of a distinctive visual language across the Muslim world? We will also explore the role of myth in the construction of cultural heritage, the development of writing into a major form of art called calligraphy, and questions of patronage and imperial ideology. We will revisit long-held assumptions about the nature of Islamic art as iconoclastic and aniconistic, and about the nature and scope of artistic exchange between the Muslim world and the Latin Christian West, Byzantium, and China. Enrollment limited to 15. Also*offered as HART 325. Instructor(s): *Hamadeh*

ARCH 327 BUILDING WORKSHOP I (3)**Building Workshop I**

The Rice Building Workshop involves students in the design and construction of real projects at various scales. Elective courses and course sequences will be formatted to address the specific requirements of each project as required. Please consult postings for further information. Instructor(s): *Samuels*

ARCH 330 METHODS OF MAKING II (3)**Methods of Making II**

Continuation of ARCH 322/622. Limited enrollment. Prerequisite(s): Permission of instructor required. Instructor(s): *Guthrie*

ARCH 331 VIS CULTURAL ISLAMIC WORLD I (3)**Visual Culture of the Islamic World I**

An introduction to the arts and architecture of the Islamic world from the rise of Islam to the Mongol invasions. Explores the development of a visual tradition through its continuities, regional variations, exchanges, and intertextualities. Examines key religious and secular institutions and art forms through their aesthetic and historical contexts. Also offered as HART 321.

ARCH 332 VIS CULTURAL ISLAMIC WORLD II (3)**Visual Culture Islamic World II**

An introduction to the architecture, ceramics, textiles, and arts of the book of the Islamic world, from Egypt to India and Central Asia, beginning in the wake of the Mongol conquests and ending with the demise of the Ottoman empire. Focusing on court patronage and production, the course examines key buildings and objects through their aesthetic, cultural, religious, and political contexts. Methodological concerns of the field are addressed through an exploration of such themes as iconoclasm, word and image, and cross-cultural influences. Also offered as HART 322 Instructor(s): *Hamadeb*

ARCH 334 BUILDING WORKSHOP II (3)**Building Workshop II**

Real-life problems dealing with design and construction. Instructor(s): *Grenader*

ARCH 340 ANIMATING ARCHITECTURE (3)**Animating Architecture**

The goal of this class will be the production of a short animated film whose central theme will be an unbuilt work of caconic architecture. Modeling and rendering skills in any 3dsoftware package are required for this course. Although we will primarily be using 3DS MAX, general knowledge of a wide range of supporting software will be very helpful. Enrollment limited to 12. Instructor(s): *Heiss*

ARCH 344 CONSTRUCTION & DESIGN (3)**Construction and Design**

A seminar in which the relationship between the construction of an object and its usefulness is explored. The premise in the course is that the way things are made can be one credible point of departure for the architectural design process.

ARCH 345 ARCHITECTURE AND THE CITY I (3)**Architecture and the City I**

This course will trace the development of Renaissance and Baroque architecture in Italy and France with reference to the dialectic of license and rule. The first part, which covers the period from 1400-1600, will focus on the civil, domestic and ecclesiastical architecture of the chief protagonists of the Italian Renaissance: Brunelleschi, Alberti, Bramante, Giulio Romano, Michelangelo and Palladio. Their buildings and urban initiatives will be interpreted in terms of continuities & discontinuities between an emerging theoretical tradition & the demands of actual practice. Also offered as HART 345.

ARCH 346 ARCHITECTURE AND THE CITY II (3)**Architecture and the City II**

This course is an overview of modern architecture with reference to related issues in cultural modernity. The course will consider important work of the 19th and 20th century, although reference will be made to earlier material where it bears on the issues under discussion. The course begins with the claim that the architecture of modernity has historically been conceived and developed in relation to utopian ideals, and that architectural modernism cannot be adequately understood unless attention is paid to its various utopian and dystopian 'moments'. Also offered as HART 206. Prerequisite(s): ARCH 345

ARCH 347 ARCHITECTURE/POPULAR CULTURE (3)**Architecture in Popular Culture**

An overview of the ways that popular culture and mass media look at architecture. Topics vary from year to year, focusing on how the discipline and objects of architecture are portrayed in one or more of the following: television, film, advertising, popular novels, animation, comic books, music video, and arcade games. Instructor(s): *Biln*

ARCH 353 PHOTO FOR ARCHITECTS (3)**Photography for Architects**

Exploration of a variety of photographic techniques for architectural research, design, and presentation. Instructor(s): *White*

ARCH 358 CAST MODERNITY (3)**Cast Modernity**

This seminar will look at concrete's role as a facilitator of the conceptual and theoretical agendas of the architecture of the 20th century. Just as the Domino system enabled a new architecture at the beginning of the century, the current interests in topological and non-treated form are again arguing for concrete's unique properties. Instructor(s): *Oliver*

(#) = credit hours per semester

ARCH 360 CRISIS AND COMMUNICATIONS (3)**Crisis and Communications**

As the demands for design today shift toward social, economic and technological concerns, the group/crisis model is re-emerging in both corporate and popular and radical milieus. We will study the history of these developments, form our own collective operation and produce a publication that reflects this emerging new approach to design culture. This is both a history and research course and a hands-on course in communications design.

ARCH 362 PHILO MATTER, FORCE & EVENT (3)**The Philosophy of Matter, Force and Event**

A lecture course on the philosophy of Gilles Deleuze will deal with the metaphysical foundations of contemporary space and time. Readings will include Deleuze's analyses of Spinoza, Leibniz, Nietzsche, and Bergson. Strong emphasis will be placed on reading, writing, as well as on design applications of principles from the work.

ARCH 363 ARCHITECTURAL REPRESENTATION (3)**Architectural Representation**

A semester long workshop designed to impart skills in free-hand drawing, with an emphasis on architectural subjects. The course will consist of in-class sketching exercises and out-of-class drawing assignments.

Instructor(s): *Cannady, Delaura*

ARCH 368 TECHNOLOGY AND SOCIETY (3)**Technology and Society**

This research-based seminar is a quod libet course open to graduate and undergraduates alike. The course will place heavy emphasis on weekly writing and reading and formal research techniques. Students will select their own research topics and will develop written and graphic materials for seminar presentations and publication. Finished materials will be prepared for, and presented at, every class meeting. It is encouraged that this course be used in conjunction with a design studio, as a research, theory, and development arm. Instructor(s): *Kwinter*

ARCH 372 SILENCE/SOUND/NOISE (3)**Silence/Sound/Noise**

This course will examine the sonorous dimensions and implications of architecture. While the course will provide an overview of basic principles of acoustics and architecture's materiality in relation to sound, the primary focus will be the architectural implications of sound-dominant rather than vision-dominant modes of thought. Limited enrollment.

ARCH 374 THE JOY OF MATERIALS (3)**The Joy of Materials**

An investigation of how materials influence and inspire the making of works of architecture. Limited enrollment: 12. Instructor(s): *Jimenez*

ARCH 375 CULTURAL CRITICISM IN ARCH (3)**Cultural Criticism in Architecture**

This seminar explores the relationship between architecture and culture. Course readings include Cornel West, Bell Hooks, and Bill Goode. Specifically, we will study the effects of advanced capitalism, identity politics and latent biases which form the foundation of the architecture profession. Limited enrollment. Instructor(s): *Williams*

ARCH 382 REPOSITIONING THE SEAM (3)**Repositioning the Seam (Technology Seminar)**

The class will explore the use of surface modeling software and CAD modeling tools how various techniques of articulating form, in relation to programmatic performance, affects the visual, formal, and spatial organization of the places we inhabit. With the use of surface modeling programs and CAD drafting tools, a heavy emphasis will be placed on articulating the work through graphic techniques before being applied to physical models. The class will be run in small groups of 2-3 people. The initial weeks of the class will be spent looking to precedents which explore various techniques of articulating form and space. Each team will then focus these various techniques from the precedents on a single space or series of spaces. With each group focusing on the same space, each with a separate emphasis, a juxtaposition of results will occur allowing for a comparison that looks to implications on the visual, performative, and organizational systems. Instructor(s): *Lally*

ARCH 384 CONCEPTUAL ART & ARCH (3)**Conceptual Art and Architecture**

The first part of the course will examine the conceptual art practices that began in the 1960s, including Bochner, Kosuth, art and language, LeWitt, Haacke, Kelly, and Smithson. The second part of the course will focus on the question of what constitutes a conceptual architecture by interrogating a series of potential practices including: Super Studio, Anchigram, Eisenman, Libeskind, Shinohara, Hejduf, Tschumi, and others. Also offered as HART 392.

(F) = Fall; (S) = Spring

ARCH 401 PRINCIPLES OF ARCHITECTURE IV (6)**Principles of Architecture IV**

Upper level architectural design problems with an emphasis on urban issues and site planning, and complex building organization. Required for preprofessional major in architecture. Instructor(s): *Jimenez*

ARCH 402 PRINCIPLES OF ARCHITECTURE IV (6)**Principles of Architecture IV**

See ARCH 302.

ARCH 412 PRODUCT (3)**Product**

Advanced course in structural design. Topics include factors controlling structural design of buildings, floor systems, building systems, facade treatments, long span structures, pneumatic and cable structures, and new structural systems and materials. Case studies will also be conducted.

ARCH 416 DESIGN & CONSTRUCTION PROJECT (3)**Design and Construction Project Delivery Innovation**

Process innovation in the design and construction industries is far too rare. Even with access to powerful tools such as CADD and the Internet, many opportunities for process improvement are overlooked and problems are repeatedly ignored. Within this course, cross-discipline project teams will use contemporary business tools to evaluate longstanding industry practices and develop ideas for process innovation. At the end of the semester, students will present innovation concepts to members of the Project Delivery Innovation Forum, a group of industry leaders that may select student ideas for further research on real projects. Also offered as MGMT 416. Instructor(s): *White*

ARCH 422 THE MAKING OF THE ORIENT (3)**The Making of the Orient**

The Making of the Orient in the 18-20th Century Europe focuses on the construction of the image of the Orient in the age of European colonial expansion. Through critical analysis of texts, images, and cultural practices (painting, photography, architecture, city planning, music, fiction, and travel literature) and key theoretical works, this course examines issues of production and codification of knowledge, politics of representation, and identity construction in and beyond the colonial period. Also offered as HART 422. Instructor(s): *Hamadeh*

ARCH 423 PROF&MGMT IN ARCH PRACTICE (3)**Professionalism and Management in Architectural Practice**

An introductory survey of the characteristics of the delivery of architectural services by professional design organizations. Through readings and lectures, students become familiar with the social, technical, legal, ethical, and financial milieu of modern architecture practice.

ARCH 424 THEORY AND MODERNISM (3)**Theory and Modernism: Architecture and Film**

This course will consider certain key relationships between film, architecture and the city in the 20th century. Our point of departure will be the claim that since well before the birth of enlightenment thought, Western spatial practices have had an insistent narrative, sequential, and scopic character that has only become more pronounced with the arrival of new media and related technologies in the 19th century. The course will operate as a seminar in which both student and instructor will offer presentations, coordinate discussions, and actively participate in class dialogues.

ARCH 425 THEORY AND MODERNISM (3)**ARCH 426 DESIGNING THE LOW-COST HOUSE (3)****Designing the Low-Cost House**

The spring course begins the sequence to produce a small house under the auspices of the Rice Building Workshop. The history and development of the small house will be examined, followed by an analysis of the proposed mid-town site and its context. Construction technologies, materials, costs, climate conditions, and code issues will be considered. Each student will develop a design approach in some detail, and a single proposal (or merging of proposals) will be selected and documented for permitting and construction. All phases of the project will incorporate collaboration with the larger community, from neighborhood organizations to local contractors.

ARCH 429 BUILDING LOW COST HOUSE II (3)**Building Low Cost House II**

This elective course will continue student involvement in the hands-on process of constructing a new structure for Project Row Houses, a noted grass-roots art project promoting neighborhood revitalization and community service in the Third Ward.

(#) = credit hours per semester

ARCH 432 INTRO TO COMPUTER APPL IN ARCH (3)**Introduction to Computer Applications in Architecture**

This course is designed as a general introduction to computing in the context of architectural design. Emphasis is on the use of digital media as design tools and the appropriate use of these tools in the varying processes of design. This course includes exposure to a broad spectrum of design, drafting, modeling and presentation software.

ARCH 433 INTRO COMP APPLICATION IN ARCH (3)**Introduction to Computer Applications in Architecture**

This course is designed as a general introduction to computing in the context of architectural design. Emphasis is on the use of digital media as design tools and the appropriate use of these tools in the varying processes of design. This course includes exposure to a broad spectrum of design, drafting, modeling and presentation software. Instructor(s): *Delauro*

ARCH 435 COMPUTER AIDED DESIGN IN ARCH (3)**Computer Aided Design in Architecture**

Introduction to basic computer graphics, computer aided design, and the programming algorithms that underlie them. Develops familiarity with packages such as Autocad and Arris. Instructor(s): *Delauro*

ARCH 436 COMPUTER AIDED DESIGN IN ARCH (3)**Computer Aided Design in Architecture**

Advanced computer graphic techniques using CAD in architecture as a design and presentation medium.

ARCH 437 VIDEO 1,2,3 (3)**Video 1,2,3**

Production of Architectural space through the use of video, scale physical models, installations, and the urban environment. Enrollment limited to 12. Prerequisite(s): Permission of instructor is required. Instructor(s): *Heiss*

ARCH 439 THREE DIMENSIONAL COMP GRAPH (3)**Three Dimensional Computer Graphics**

A workshop in three dimensional computer modeling and its theoretical implications for architecture and design. One class session each week will be a how to lecture covering the technical side of modeling. The other sessions will consist of group discussion through which we will explore the theoretical implications of the medium and test the limits of its use as architectural representation. Prerequisite(s): Permission of instructor required. Instructor(s): *Lally*

ARCH 455 HOUSE&URBAN PROG:ISSUE POLICY (3)**Housing and Urban Programs: Issues in Policy**

This course will explore current issues in the formulation and implementation of housing and urban development programs in the U.S. An oral presentation and written paper on a specific topic within a general policy area required. Instructor(s): *Lord*

ARCH 461 SPECIAL PROJECTS (HOURS VARIABLE)**Special Projects**

Independent research or design arranged in consultation with a faculty member. Subject to approval of faculty advisor and director. Very limited enrollment.

ARCH 464 IND PROJ FURN DESIGN&FABRICATN (3)**Independent Projects in Furn Design and Fabrication**

This course will examine alternative materials and material technologies, both existing and emerging, and their impact on the design and fabrication of furniture. The class will initially focus on research into impact of innovations in materials and practices on the production of furniture over the course of the last century. Each student will specifically address the use made by various designers of these changes. The remainder of the course will see each student focus on the investigation of a specific material and its possible methods of manipulation via a simultaneous process of research/design resulting in the fabrication of a proto type.

ARCH 469 STUDY IN URBAN DESIGN: BRASILIA (3)**Case Study in Urban Design: Brasilia**

Starting with two principal documents describing the city of Brasilia, the original hand drawn competition entry in 1957 and a digital survey of 1997, this seminar will study modern urban design in relation to the 1950's project for a new Brazilian capital. The project of Brasilia, and its inevitable transformation over time, will be looked at historically, politically, culturally, formally and esthetically. Enrollment limited to 12.

Course not offered 2004-2005.

(F) = Fall; (S) = Spring

ARCH 481 THE IDEA OF HOUSING (3)**The Idea of Housing**

in the 1920's the architectural idea of housing and the philosophical idea of existentialism emerged simultaneously in presumably unrelated intellectual circles. Being and Time was published in 1927, the same year the Weissenhof Settlement opened to the public in Stuttgart. One need only emphasize the fact that Martin Heidegger is precisely the same age as both Le Corbusier and Mies to suggest an exploration of the possible connections between the two seemingly disparate intellectual trends. Whether this shared history represents only a coincidence or the overlap of significant content is an open question. The first part of the seminar will examine this question. The second part will catalogue the institutionalization of these ideas through the 1950s using a series of case studies.

ARCH 483 TWENTHCENT HIST OF IDEAS OF ARCH (3)**Twentieth Century History of Ideas of Architecture**

This course will examine Twentieth Century architectural discourse in a broad intellectual context. Course material will cover the period between 1900 and the present, focusing on 1965-1995. Special attention will be paid to relationships among philosophy, critical theory, cultural criticism, and the objects and theories of architecture. The following topics are covered: Anticipation and Reflection, Formalist Aesthetics, Architecture and Form, Culture and Modernity, Culture and Depth Analysis, Psychoanalytic Interpretation, Architecture and Desire, Culture and Politics, Marxism and Neo-Historicism, Architecture and Political Critique, Phenomenology and Reception, Architecture and the Life-World, Culture after Modernism, Semiotics and Structuralism, Discourse and Discipline, Deconstruction and Textuality, Deconstruction (Re) constructed, Feminism and Gender Theory, Architecture and Difference. Instructor(s): *Last*

ARCH 492 PROBLEMS IN KNOWLEGE & DESIGN (3)**Problems in Knowledge and Design**

This course will present as series of lectures on the physics and metaphysics of creation and genesis from a wide variety of perspectives and disciplines, slowly sewing them together within a general and non-classical approach to form. Instructor(s): *Kwinter*

ARCH 500 PRECEPTORSHIP PROGRAM (15)**Preceptorship Program**

Full time internship for nine to twelve months under guidance of appointed preceptor. Required for all recipients of Rice B.A. degrees in pre-professional program of area majors who seek admission to graduate studies in Architecture. Instructor(s): *Casbarian*

ARCH 501 CORE DESIGN STUDIO I (10)**Core Design Studio I**

Requisite for admission to graduate professional program options in architecture or urban design for students with nonarchitectural bachelor's degree. Lectures, seminars, laboratories, and design studio projects adjusted to individual needs. Prerequisite(s): Determined by the Graduate Affairs Committee with the School of Architecture. Instructor(s): *Guthrie*

ARCH 502 CORE DESIGN STUDIO II (10)**Core Design Studio II**

This studio emphasizes the impact of building systems and protocols on the spatial and formal organization of architecture with a final project focused on the design of a public building in a metropolitan context. The studio focuses equally on the development of conceptual rigor and technical expertise. Instructor(s): *Oliver*

ARCH 503 CORE DESIGN STUDIO III (10)**Core Design Studio III**

Design studio to follow Arch 501, 502. Preparation for entering studios in the regular graduate programs in architecture and urban design in the following semester. Instructor(s): *Wittenberg, Finley*

ARCH 504 ARCHITECTURAL PROBLEMS (10)**Architectural Problems**

Exploration of abstract thought and design capabilities relevant to systematic processes of designing specific buildings and facilities. Course content is topic oriented and varies section to section. Instructor(s): *Hight, Lally*

ARCH 507 INTRO TO DESIGN OF STRUCTURES (3)**Introduction to Design of Structures**

Graduate version of ARCH 207.

ARCH 514 DESIGN OF STRUCTURES II (3)**Design of Structures II**

A course in structures for students in the Option I Program. Topics include: structure in architecture; forces and equilibrium; structural materials; the behavior, analysis, and design of structural elements and their connections.

(#) = credit hours per semester

ARCH 515 DESIGN OF STRUCTURES III (3)**Design of Structures III**

A second course in structures for students in the Qualifying Graduate Program. Topics include: additional topics in the behavior, analysis, and design of structural elements; synthesis of structural elements into structural systems; integration of structural systems with other building systems. Instructor(s): *Oberholzer*

ARCH 516 ENVIRONMENTAL CONTROL SYSTEMS (3)**Environmental Control Systems**

Graduate version of ARCH 316.

ARCH 532 INTRO TO DIGITAL VISUAL & COMM (3)**Intro to Digital Visualization and Communication**

Provides an introduction to digital visualization & communication in the context of architectural design. Emphasis is placed on working methods that engage specific issues of the complex assemblies in architectural practice, coordinating various software and graphic techniques through composite methods. The last 3 weeks of the semester will focus on the design and production of a printed portfolio to organize and communicate design work from the first 2 semesters of the core studio sequence. Applications include: Illustrator, In-Design, PhotoShop, AutoCAD, 3DMAX, FormZ, DreamWeaver, and Flash.

ARCH 600 M. ARCH. I INTERNSHIP (HOURS VARIABLE)**M Arch I Internship**

Practical work experience for students who have completed at least four semesters in the Option I Program prior to their entrance into the regular Master of Architecture studio sequence. Prerequisite(s): Permission of instructor required. Very limited enrollment.

ARCH 601 ARCHITECTURAL PROBLEMS:STUDIO (10)**Architectural Problems: Studio**

Emphasis on abstract thought and design capabilities relevant to systematic processes of designing specific buildings and facilities.

ARCH 602 ARCHITECTURAL PROBLEMS (10)**Architectural Problems**

Emphasis on abstract thought and design capabilities relevant to systematic processes of designing specific buildings and facilities.

ARCH 605 ARCH PROBLEMS: STUDIO (10)**Architectural Problems: Studio**

Studio conducted in a workshop format with exercises in such topical areas as program development, energy analysis and design, building system integration, and financial analysis.

ARCH 610 HISTORY/THEORY STRUCTURE (6)**Building Workshop: Theater Renovation**

Special seminars, lectures, and site visits relevant to history, urban theory, and structure of Paris and other European centers.

ARCH 611 HOUSTON ARCHITECTURE (3)**Houston Architecture**

Graduate version of ARCH 311.

ARCH 612 PRODUCT (3)**Product**

Graduate version of ARCH 412.

ARCH 613 SUSTAINABLE DESIGN (3)**Sustainable Design**

Graduate version of ARCH 313.

ARCH 616 DESIGN & CONSTRUCTION PROJECT (3)**Design and Construction Project Delivery Innovation**

Graduate version of ARCH 416. Also offered as MGMT 716.

ARCH 617 LANDSCAPE&SITE STRAT FOR HOUST (3)**Landscape and Site Strategies for Houston**

This course is a workshop in site planning, with Houston as its focus. It will allow students to gain practice assessing, cataloging, and communicating the many complex issues that go into plugging a building into a site. We will navigate the networks created by natural environments, the build and legal environments, and access. The final product of this course is a site plan. Enrollment limited to 15.

(F) = Fall; (S) = Spring

ARCH 619 MAKE IT: CULTURE OF CONSTRUCTION (3)**Making It: The Culture of Construction**

Graduate version of ARCH 419.

ARCH 620 ARCHITECTURAL PROBLEMS (10)**History of Building Technology**

Advanced issues in building design and urban infrastructure using Paris as context. Exploration of compound design processes resulting in the development of complex building typologies.

ARCH 621 ECON OF THE BUILT ENVIRONMENT (3)**Economics of the Built Environment**

Graduate version of ARCH 321.

ARCH 622 METHODS OF MAKING (3)**Methods of Making**

Graduate version of ARCH 322.

ARCH 623 PROF & MGMT IN ARCH PRACTICE (3)**Professionalism and Management in Architectural Practice**

Graduate version of ARCH 423.

ARCH 624 THEORY AND MODERNISM (3)**Theory and Modernism**

Graduate equivalent of ARCH 424.

ARCH 625 THEORY AND MODERNISM (3)**Theory And Modernism**

Graduate version of ARCH 425. Enrollment limited to 6.

ARCH 626 DESIGNING THE LOW-COST HOUSE (3)**Designing the Low-Cost House**

Graduate version of ARCH 426.

ARCH 627 BUILDING WORKSHOP I (3)**Building Workshop I**

Graduate version of ARCH 327.

ARCH 629 BUILDING LOW COST HOUSE II (3)**Building Low Cost House II**

Graduate version of ARCH 429.

ARCH 630 METHODS OF MAKING II (3)**Methods of Making II**

Continuation of ARCH 322/622. Limited enrollment.

ARCH 632 INTRO TO COMPUTERS IN ARCH (3)**Introduction to Computers in Architecture**

Lectures and seminars dealing with problem-solving activities and methodological issues in architectural design and urban design.

ARCH 633 INTRO COMPUTER APPLIC IN ARCH (3)**Introduction to Computer Applications in Architecture**

Graduate version of ARCH 433.

ARCH 634 BUILDING WORKSHOP II (3)**Building Workshop II**

Graduate version of ARCH 334.

ARCH 635 COMPUTER AIDED DESIGN (3)**Computer Projects in Architecture**

Special projects for advanced students in computer applications. (Same as ARCH 435.)

ARCH 636 COMPUTER AIDED DESIGN IN ARCH (3)**Computer Aided Design in Architecture**

Graduate version of ARCH 436.

ARCH 637 VIDEO 1,2,3 (3)**Video 1,2,3**

Graduate version of ARCH 437.

(#)= credit hours per semester

ARCH 638 FOUND IN THE TRANSLATION (3)

Found in the Translation

Graduate version of ARCH 438. Enrollment limited to 5.

ARCH 640 ANIMATING ARCHITECTURE (3)

Digital Rendering, Animation and Virtual Reality

Graduate version of ARCH 440.

ARCH 644 CONSTRUCTION & DESIGN (3)

Construction and Design

Graduate version of ARCH 344.

ARCH 647 ARCHITECTURE/POPULAR CULTURE (3)

Architecture in Popular Culture

Graduate version of ARCH 347.

ARCH 650 URBAN IDENTITY,UTOPIA&REFUSAL (3)

Urban Identity, Utopia, and Refusal

Graduate version of ARCH 350.

ARCH 653 PHOTO FOR ARCHITECTS (3)

Photography for Architects

Graduate version of ARCH 353.

ARCH 654 20TH CENTURY NORTH AMER ARCH (3)

20th Century North American Architecture

Graduate version ARCH 454.

ARCH 655 HOUSE&URBAN PROG:ISSUES POLICY (3)

Housing and Urban Programs: Issues in Policy

This course will explore current issues in the formulation and implementation of housing and urban development programs in the U.S. Class members will each select a specific topic within a general policy area and make oral presentation to the class as well as submit a written paper on the topic at the end of the semester. Instructor(s): *Lord*

ARCH 658 CAST MODERNITY (3)

Cast Modernity

Graduate version of ARCH 358.

ARCH 660 CRISIS AND COMMUNICATION (HOURS VARIABLE)

Crisis and Communication

Graduate version of ARCH 360.

ARCH 662 PHILOSOPHY MATTER,FORCE & EVENT (3)

The Philosophy of Matter, Force and Event

Graduate version of ARCH 362.

ARCH 663 ARCH REPRESENTATION (3)

Architectural Representation

A semester long workshop designed to impart skills in free-hand drawing, with an emphasis on architectural subjects. The course will consist of in-class sketching exercises and out-of-class drawing assignments.

ARCH 665 CONVERSTNS:VISITING CRITIC SEM (3)

Conversations: Visiting Critic Seminar

Seminars structured around topics dealing with design theory, with special emphasis on participation by visiting critics and professors.

ARCH 667 GRAD SEM: CRITICISM & ARCH (3)

Graduate Seminar: Criticism and Architecture

The seminar will examine the history of critical writings on architecture from the 18th century to the present, consider the various categories used to criticize, such as aesthetics, politics, and technology, and analyze the role that architectural criticism has played in a general cultural context, keeping an eye on parallel trends in the theory of criticism in other disciplines.

ARCH 668 TECHNOLOGY AND SOCIETY (3)

Technology and Society

This research-based seminar is a quod libet course open to graduates and undergraduates alike. The course will place heavy emphasis on weekly writing and reading and formal research techniques. Students will select their own research topics and will develop written and graphic materials for seminar presentations and publication. Finished materials will be prepared for, and presented at, every class meeting. It is encouraged that this course be used in conjunction with a design studio, as a research, theory, and development arm. Instructor(s): *Kwinter*

(F) = Fall; (S) = Spring

ARCH 669 CASE STUDY URBAN DESIGN: BRASILIA (3)**Case Study in Urban Design: Brasilia**

Graduate version of ARCH 469. Not offered 2004-2004.

ARCH 671 ISSUES IN COMPUTER AIDED DESIG (3)**Issues in Computer Aided Design**

The class will produce an interactive creative multimedia CD-ROM project about the City of Houston: an investigative multi-dimensional map of the city and its population. We will explore various issues such as content creation and its presentation, interface design, and ease of use. Students will conceive the structure, do the investigative research with the city, write, direct, and edit content (text, images, video, computer graphics, etc.).

ARCH 674 THE JOY OF MATERIALS (3)**The Joy of Materials**

Graduate version of ARCH 374.

ARCH 675 CULTURAL CRITICISM IN ARCH (3)**Cultural Criticism in Architecture**

This seminar explores the relationship between architecture and culture. Course readings include Cornel West, bell hooks, and Bill Goode. Specifically, we will study the effects of advanced capitalism, identity politics and latent biases, which form the foundation of the architecture profession. Limited enrollment.

ARCH 681 THE IDEA OF HOUSING (3)**The Idea of Housing**

Graduate version of ARCH 481.

ARCH 682 REPOSITIONING THE SEAM (3)**Repositioning the Seam (Technology Seminar)**

The class will explore through the use of surface modeling software and CAD modeling tools how various techniques of articulating form, in relation to programmatic performance, affects, the visual, formal and spatial organization of the places we inhabit. With the use of surface modeling programs CAD drafting tools, a heavy emphasis will be placed on articulating the work through graphic techniques before being applied to physical models. The class will be run in small groups of 2-3 people. The initial weeks of the class will be spent looking to precedents, which explore various techniques from the precedents on a single space or series of space. Each team will then focus these various techniques from the precedents on a single space or series of space. With each group focusing on the same space, each with a separate emphasis, a juxtaposition of results will occur allowing for a comparison that looks to implications on the visual, performative, and organizational systems.

ARCH 683 20TH CENT HIST OF IDEAS OF ARCH (3)**Twentieth Century History of Ideas of Architecture**

Graduate version of ARCH 483.

ARCH 684 CONCEPTUAL ART & ARCH (3)**Conceptual Art and Architecture**

The first part of the course will examine the conceptual art practices that begin in the 1960s including: Bochner, Kosuth, Art and Language, LeWitt, Maacke, Kelly and Smithson. The second part of the course will focus on the question of what constitutes a conceptual architecture by interrogating a series of potential practices including: Super Studio, Archigram, Eisenman, Libeskind, Shinozaki, Heidegger, Tschumi and others.

ARCH 685 ARCH & SOCIETY I ANTIQ-17CENT (3)**Architecture and Society I (Antiquity Through 17th Century)**

Through a series of case studies, this course will examine the socio-cultural consequences of exemplary buildings from Antiquity through the 17th Century.

ARCH 686 ARCH & SOCIETY II ENLIGHT-POST (3)**Architecture and Society II (Enlightenment-Postmodernity)**

Through a series of case studies, this course will examine the socio-cultural consequences of exemplary buildings from the Enlightenment through Postmodernity. Also offered as HART 506.

ARCH 691 ARCHITECTURAL PROBLEMS: STUDIO (3)**Architectural Problems: Studio**

Graduate version of ARCH 601.

ARCH 692 PROBLEMS IN KNOWLEDGE & DESIGN (3)**Problems in Knowledge and Design**

This course will present as series of lectures on the physics and metaphysics of creation and genesis from a wide variety of perspectives and disciplines, slowly sewing them together with a general and non-classical approach to form.

(#) = credit hours per semester

ARCH 700 PRACTICUM (3)**Practicum**

Full-time internship service in approved local offices under interdisciplinary supervision. Emphasis on real world design, planning, or research experiences. Special tuition. May be taken in any semester or in summer.

ARCH 702 PRE-THESIS PREPARATION (3)**Pre-Thesis Preparation****ARCH 703 DESIGN THESIS STUDIO (13)****Design Thesis Studio****ARCH 705 WRITTEN THESIS RESEARCH (3)****Written Thesis Research****ARCH 706 WRITTEN THESIS (13)****Written Thesis****ARCH 711 SPECIAL PROJECTS (3)****Special Projects**

Independent research or design arranged in consultation with a faculty member subject to approval of the student's faculty advisor and director.

ARCH 714 INDEPENDENT DESIGN PROJECTS (HOURS VARIABLE)**Independent Design Projects****ARCH 800 GRADUATE RESEARCH (HOURS VARIABLE)****Graduate Research****ARTV (VISUAL ARTS)****School of Humanities/Visual Arts****ARTV 102 CREATIVE 3-D DESIGN (3)****Creative 3-D Design**

Study of the elements and principles of design. Three-dimensional problems are introduced. ARCH 102 is accepted as equivalent. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Also offered as ARCH 102. Instructor(s): *Smith*

ARTV 205 PHOTOGRAPHY I (3)**Photography I**

Exploration of the basic materials and processes of the photographic medium. Includes viewing, analysis, and discussion of the medium's history and current trends. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Instructor(s): *Winningham*

ARTV 206 PHOTOGRAPHY II (3)**Photography II**

Continuation of ARTS 205. Exploration of the basic materials and processes of the photographic medium. Includes viewing, analysis, and discussion of the medium's history and current trends. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Instructor(s): *Winningham*

ARTV 216 35MM PHOTOGRAPHY (3)**35mm Photography**

Introduction to 35mm photography. Space in studio class is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Instructor(s): *Winningham*

ARTV 225 DRAWING I (3)**Drawing I**

This course introduces the student to techniques and materials, processes of drawing, and the use of drawing to explore the visual language of line, tone, composition, and linear and atmospheric perspective. Emphasis on learning to articulate form in space through observational studies using both wet and dry media. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Instructor(s): *Poulos*

(F) = Fall; (S) = Spring

ARTV 291 SPECIAL PROBLEMS IN DESIGN (HOURS VARIABLE)**Special Problems in Design: Creative Three-Dimensional**

Study of problems at the introductory level in creative art. May be used in awarding transfer credit. Prerequisite(s): Permission of instructor. Instructor(s): *Smith*

ARTV 293 SPECIAL PROBLEMS IN DRAWING (HOURS VARIABLE)**Special Problems in Drawing**

Study of problems at the introductory level in creative art. May be used in awarding transfer credit. Prerequisite(s): Permission of instructor.

ARTV 294 SPECIAL PROBLEMS IN STUDIO ART (HOURS VARIABLE)**Special Problems in Studio Art**

Study of problems at the introductory level in creative art. May be used in awarding transfer credit. Prerequisite(s): Permission of instructor.

ARTV 295 SPEC PROB PHOTOGRAPHY (HOURS VARIABLE)**Special Problems in Photography**

Study of problems at the introductory level in creative art. May be used in awarding transfer credit. Prerequisite(s): Permission of instructor. Instructor(s): *Winningham*

ARTV 296 SPEC PROB FILM & VIDEOTAPE (HOURS VARIABLE)**Special Problems in Film and Videotape Making**

Study of problems at the introductory level in creative art. May be used in awarding transfer credit. Prerequisite(s): Permission of the instructor. Instructor(s): *Huberman*

ARTV 301 PAINTING (3)**Painting**

Study of problems in painting, both traditional and experimental, in various opaque media. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Enrollment limited to 12. Prerequisite(s): ARTV 225 Instructor(s): *Sparagana*

ARTV 303 INTERMEDIATE PAINTING (3)**Intermediate Painting**

Continuation of studies of problems in painting, both traditional and experimental, in various opaque media. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Enrollment limited to 12. Prerequisite(s): ARTV 225, 301

ARTV 304 PHOTOGRAPHIC MEDIA FOR ARTISTS (3)**Photographic Media for Artists**

Guided exploration of traditional and non-traditional photographic media for students with prior experience in drawing, painting, printmaking, sculpture, or photography. Photographic media open for students' exploration will include, but not limited to, black and white silver printing, traditional photographic color printing, digital printing, and oil pigment on photographic images. Prerequisite(s): ARTV 205 or ARTV 225 or ARTV 301. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Enrollment limited to 8.

ARTV 305 PHOTOGRAPHY III (3)**Photography III**

Study of advanced problems in photography, with emphasis on the independent pursuit of projects submitted by the students. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Instructor(s): *Winningham*

ARTV 306 PHOTOGRAPHY IV (3)**Photography IV**

Study of advanced problems in photography, with emphasis on the independent pursuit of projects submitted by the students. Continuation of ARTV 305. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Instructor(s): *Winningham*

ARTV 310 COLLABORATIVE PRINTMAKING (3)**Collaborative Printmaking**

This course is designed to interactively educate the student about the collaborative print process beyond artistic dialog, allowing each student to work as artist-printmaker, economist, and business planner. The course will examine the process of taking artwork from the beginning concept to the finished product to the marketplace—all the while staying within a budget. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Enrollment limited to 10. Instructor(s): *Broker*

(#) = credit hours per semester

ARTV 311 INTAGLIO I (3)**Intaglio I**

Instruction in black and white etching and photo etching. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Enrollment limited to 10. Prerequisite(s): ARTV 225 Instructor(s): *Broker*

ARTV 312 RELIEF I (3)**Relief I**

Instruction in black-and-white linoleum prints. Includes advanced color methods. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Enrollment limited to 8. Prerequisite(s): ARTV 225. Instructor(s): *Broker*

ARTV 313 LITHOGRAPHY I (3)**Lithography I**

Instruction in stone and plate lithography in black-and-white. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Enrollment limited to 8. Prerequisite(s): ARTV 225 Instructor(s): *Broker*

ARTV 320 MONOTYPE I (3)**Monotype I**

Introduction to Monotype. Includes black-and-white and color Monotype printing. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Enrollment limited to 12. Prerequisite(s): ARTV 225 Instructor(s): *Broker*

ARTV 325 LIFE DRAWING (3)**Life Drawing**

Instruction in drawing from the model in various media. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Enrollment limited to 15. Prerequisite(s): ARTV 225. Instructor(s): *Keeton*

ARTV 327 DOCUMENTARY PRODUCTION (3)**Documentary Production**

Study of the expressive possibilities of documentary production using digital systems. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Enrollment limited to 15. Instructor(s): *Huberman*

ARTV 328 FILMMAKING I (3)**Filmmaking I**

Dramatic film production class that requires the making of one digital video and one 16mm film. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Prerequisite(s): ARTV 327 Instructor(s): *Huberman*

ARTV 329 FILM FORUM (3)**Film Forum**

Viewing, analysis, and discussion of modern and classic films. Space in studio classes is limited. Registration does not guarantee a seat in class. The class roster is formulated on the first day of class by the individual instructor. Enrollment limited to 35. Instructor(s): *Huberman*

ARTV 337 COLOR DRAWING (3)**Color Drawing**

Introduction to color using still lives and various media (e.g., pastel and watercolor). Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Enrollment limited to 17. Prerequisite(s): ARTV 225 Instructor(s): *Poulos*

ARTV 345 COLOR PHOTOGRAPHY I (3)**Color Photography I**

Study in the fundamentals of color photography. Includes problems in exposing color negative and transparency film, as well as photographic and digital color printing. Enrollment limited to 15. Prerequisite(s): ARTV 205, 206 Instructor(s): *Winningham*

ARTV 346 COLOR PHOTOGRAPHY II (3)**Color Photography II**

Study in the fundamental techniques of color photography. Includes special problems in color camera work, color negative and transparency processing, and color printing. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Continuation of ARTV 345. Prerequisite(s): ARTV 205, 206 Instructor(s): *Winningham*

(F) = Fall; (S) = Spring

ARTV 349 PRINTMAKING I (3)**Printmaking I**

Study of the problems and techniques in printmaking at the beginning level. Both traditional and experimental forms of printmaking will be examined. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Enrollment limited to 8. Prerequisite(s): ARTV 225 Instructor(s): *Broker*

ARTV 350 SPECIAL PROBLEMS IN PRINTMAKING (HOURS VARIABLE)**Special Problems in Printmaking**

Study at the introductory level of the problems in the creative art of printmaking. May be used in awarding transfer credit. Prerequisite(s): ARTV 225 and permission of the instructor. Instructor(s): *Broker*

ARTV 365 SCULPTURE I (3)**Sculpture I**

Exploration of sculpture in wood, metal, and other sculptural media. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Enrollment limited to 10. Instructor(s): *Smith*

ARTV 366 SCULPTURE STUDIO (3)**Sculpture Studio**

Exploration of sculpture in wood, metal, and other sculptural media. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Continuation of ARTV 365. Enrollment limited to 12. Instructor(s): *Smith*

ARTV 381 DIGITAL IMAGING I (3)**Digital Imaging I**

This course is designed as an introduction to electronic media as a tool for artistic production. Students will learn the foundations of Adobe Photoshop as it relates to production of image making a new media applications. This course will address, among other things, constructing images, color correction and duo tones, using layers, Bezier curves, use of text, and issues of input/output. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Enrollment limited to 8. Instructor(s): *Staff*

ARTV 382 DIGITAL IMAGING II (3)**Digital Imaging II**

A continuation of ARTV 381, this course will introduce electronic media as a tool for artistic production. Students will learn more advanced uses of Adobe Photoshop as it relates to production of image making and new media applications. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Enrollment limited to 8. Prerequisite(s): ARTV 381. Instructor(s): *Thomas*

ARTV 390 INVESTIGATING DRAWING (3)**Investigating Drawing: Theory and Practice**

Examination of the basic principles of drawing and representation, with emphasis on studio practice, art history, and theory. Includes categories of representation (e.g., still life, landscape, and figure) and the process of making drawings, as well as related readings, group discussions, and writing assignments. May substitute ARTV 390 for ARTV 225 as a studio prerequisite. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Co-requisite(s): HART 390

ARTV 391 SPECIAL PROBLEMS IN DRAWING (HOURS VARIABLE)**Special Problems in Drawing**

Study of problems in creative art. May be used in awarding transfer credit. Prerequisite(s): Permission of the instructor.

ARTV 392 SPECIAL PROBLEMS LIFE DRAWING (HOURS VARIABLE)**Special Problems in Life Drawing**

Study of problems in creative art. May be used in awarding transfer credit. Prerequisite(s): Permission of the instructor. Instructor(s): *Poulos*

ARTV 393 SPECIAL PROBLEMS IN PAINTING (HOURS VARIABLE)**Special Problems in Painting**

Study of problems in creative art. May be used in awarding transfer credit. Prerequisite(s): Permission of the instructor. Instructor(s): *Poulos*

(#) = credit hours per semester

ARTV 394 SPECIAL PROBLEMS PRINTMAKING (HOURS VARIABLE)**Special Problems in Printmaking**

Study of problems in creative art. May be used in awarding transfer credit. Prerequisite(s): Permission of the instructor.

ARTV 395 SPEC PROB PHOTOGRAPHY (HOURS VARIABLE)**Special Problems in Photography**

Study of problems in creative art. May be used in awarding transfer credit. Prerequisite(s): Permission of the instructor. Instructor(s): *Winningham*

ARTV 396 SPEC PROB FILM & VIDEOTAPING (HOURS VARIABLE)**Special Problems in Film and Videotaping**

Study of problems in creative art. May be used in awarding transfer credit. Prerequisite(s): Permission of the instructor. Instructor(s): *Huberman*

ARTV 397 SPECIAL PROBLEMS IN SCULPTURE (HOURS VARIABLE)**Special Problems in Sculpture**

Study of problems in creative art. May be used in awarding transfer credit. Prerequisite(s): Permission of the instructor. Instructor(s): *Smith*

ARTV 411 INTAGLIO II (3)**Intaglio II**

Black-and-white etching and photo etching at the advanced level. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Enrollment limited to 8. Prerequisite(s): ARTV 225 and ARTV 311. Instructor(s): *Broker*

ARTV 412 RELIEF II (3)**Relief II**

Instruction in black-and-white linoleum prints at the advanced level. Includes advanced color methods. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Enrollment limited to 8. Prerequisite(s): ARTV 225 and ARTV 312. Instructor(s): *Broker*

ARTV 413 LITHOGRAPHY II (3)**Lithography II**

Instruction at the advanced level in stone and plate lithography in black-and-white and color. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Enrollment limited to 8. Prerequisite(s): ARTV 225, 313 Instructor(s): *Broker*

ARTV 420 MONOTYPE II (3)**Monotype II**

Advanced Monotype processes: emphasis on color and drawing techniques. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Enrollment limited to 12. Prerequisite(s): ARTV 225, 320 Instructor(s): *Broker*

ARTV 423 SPECIAL PROBLEMS IN PAINTING (HOURS VARIABLE)**Special Problems in Painting**

Study of problems in creative art. May be used in awarding transfer credit. Prerequisite(s): Permission of the instructor.

ARTV 425 ADVANCED DRAWING (3)**Advanced Drawing**

An advanced level course for experiencing the art of drawing by working in an expansive format. By using, but not limited to, traditional materials, students will be encouraged to explore the language of drawing in contemporary art making. Emphasis will be on individual project development and staying with ideas to observe, investigate, and document evolutions in the work. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Enrollment limited to 10. Prerequisite(s): ARTV 225 Instructor(s): *Sparagana*

ARTV 426 STILL LIFE/ SELF PORTRAITURE (3)**Studio Subjects: Still Life/ Self-Portrait**

A studio class with in-depth exploration of still life and self-portraiture painting problems. The students will be expected to develop a body of work using water-based mediums, collage, and different surfaces. There will be discussions/critiques of the students' work using historical concepts of past masters of both studio subjects. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Enrollment limited to 12. Instructor(s): *Poulos*

(F) = Fall; (S) = Spring

ARTV 427 DOCUMENTARY PRODUCTION II (3)**Documentary Production II**

Advanced documentary production using digital camera & editing systems. Continuation of ARTV 327. Space in studio classes is limited. Registration does not guarantee a place in the class. The class roster is formulated on the first day of class by the individual instructor. Instructor(s): *Huberman*

ARTV 428 FILMMAKING II (3)**Filmmaking II**

Completion of one major film project by each student, using either video or 16mm film. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Instructor(s): *Huberman*

ARTV 432 FILM GENRE: THE WESTERN (3)**Film Genre: The Western**

Survey of the essential American film experience spanning all the years of U.S. cinema, with emphasis on the western and its mythic function in society. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Enrollment limited to 35. Instructor(s): *Huberman*

ARTV 443 SPECIAL PROBLEMS IN DESIGN (HOURS VARIABLE)**Special Problems in Design**

Study of advanced problems in creative art. May be used in awarding transfer credit. Prerequisite(s): Permission of the instructor. Instructor(s): *Smith*

ARTV 445 SPECIAL PROBLEMS IN DRAWING (HOURS VARIABLE)**Special Problems in Drawing**

Study of advanced problems in creative art. May be used in awarding transfer credit. Prerequisite(s): Permission of the instructor.

ARTV 447 SPECIAL PROBLEMS LIFE DRAWING (HOURS VARIABLE)**Special Problems in Life Drawing**

Study of advanced problems in creative art. May be used in awarding transfer credit. Prerequisite(s): Permission of the instructor. Instructor(s): *Poulos*

ARTV 449 PRINTMAKING STUDIO (3)**Printmaking Studio**

Exploration of etching, lithography, photo gravure, and monoprinting. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Enrollment limited to 8. Prerequisite(s): ARTV 225. Instructor(s): *Broker*

ARTV 450 SPECIAL PROBLEMS PRINTMAKING (HOURS VARIABLE)**Special Problem: Printmaking**

Study of advanced problems in creative art. May be used in awarding transfer credit. Prerequisite(s): Permission of the instructor. Instructor(s): *Broker*

ARTV 452 SPECIAL PROBLEMS IN PAINTING (HOURS VARIABLE)**Special Problems in Painting**

Study of advanced problems in creative art. May be used in awarding transfer credit. Prerequisite(s): Permission of the instructor. Instructor(s): *Sparagana*

ARTV 454 SPECIAL PROBLEMS- PHOTOGRAPHY (HOURS VARIABLE)**Special Problems in Photography**

Study of advanced problems in creative art. May be used in awarding transfer credit. Prerequisite(s): Permission of the instructor. Instructor(s): *Winningham*

ARTV 456 SPECIAL PROBLEMS IN FILMMAKING (HOURS VARIABLE)**Special Problems in Filmmaking**

Study of advanced problems in creative art. May be used in awarding transfer credit. Prerequisite(s): Permission of the instructor. Instructor(s): *Huberman*

ARTV 457 SPECIAL PROBLEM-SCULPTURE (HOURS VARIABLE)**Special Problems in Sculpture**

Study of advanced problems in creative art. May be used in awarding transfer credit. Prerequisite(s): Permission of the instructor. Instructor(s): *Smith*

(#) = credit hours per semester

ARTV 465 SCULPTURE I (3)**Sculpture I**

Study of advanced problems in various sculptural media. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Enrollment limited to 10. Prerequisite(s): ARTV 365 and 366 Instructor(s): *Smith*

ARTV 466 SCULPTURE STUDIO (3)**Sculpture Studio**

Study of advanced problems in various sculptural media. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Enrollment limited to 10. Prerequisite(s): ARTV 365 and 366. Instructor(s): *Smith*

ARTV 475 ADVANCED PAINTING (3)**Advanced Painting**

Study of advanced problems in painting, with emphasis on independent development and participation in class critiques. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Enrollment limited to 17. Prerequisite(s): ARTV 301,303 Instructor(s): *Poulos*

ARTV 494 SPECIAL PROBLEMS PRINTMAKING (HOURS VARIABLE)**Special Problems in Printmaking**

Study at the advanced level of the problems in creative art of printmaking. May be used in awarding transfer credit. Prerequisite(s): ARTV 225 and permission of the instructor. Instructor(s): *Broker*

ARTV 501 STUDIO I: PAINTING (3)**Studio I: Painting**

Individual work in painting under the direction of one or more faculty members. This class is for B.F.A. candidates only. Prerequisite(s): Permission of the instructor. Instructor(s): *Keeton*

ARTV 503 STUDIO I: SCULPTURE (3)**Studio I: Sculpture**

Individual work in sculpture under the direction of one or more faculty members. This class is for B.F.A. candidates only. Prerequisite(s): Permission of the instructor. Instructor(s): *Keeton*

ARTV 505 STUDIO I: DRAWING (3)**Studio I: Drawing**

Individual work in drawing under the direction of one or more faculty members. This class is for B.F.A. candidates only. Prerequisite(s): Permission of the instructor. Instructor(s): *Keeton*

ARTV 507 STUDIO I: LIFE DRAWING (3)**Studio I: Life Drawing**

Individual work in life drawing under the direction of one or more faculty members. This class is for B.F.A. candidates only. Prerequisite(s): Permission of the instructor. Instructor(s): *Keeton*

ARTV 509 STUDIO I: DESIGN (3)**Studio I: Design**

Individual work in design under the direction of one or more faculty members. This class is for B.F.A. candidates only. Prerequisite(s): Permission of the instructor. Instructor(s): *Smith*

ARTV 511 STUDIO I: PRINTMAKING (3)**Studio I: Printmaking**

Individual work in printmaking under the direction of one or more faculty members. This class is for B.F.A. candidates only. Prerequisite(s): Permission of the instructor. Instructor(s): *Broker*

ARTV 513 STUDIO I: PHOTOGRAPHY (3)**Studio I: Photography**

Individual work in photography under the direction of one or more faculty members. This class is for B.F.A. candidates only. Prerequisite(s): Permission of the instructor. Instructor(s): *Winningham*

ARTV 515 STUDIO I: FILMMAKING (3)**Studio I: Filmmaking**

Individual work in filmmaking under the direction of one or more faculty members. This class is for B.F.A. candidates only. Prerequisite(s): Permission of the instructor. Instructor(s): *Huberman*

ARTV 520 STUDIO II: PAINTING (6)**Studio II: Painting**

Individual work in painting under the direction of one or more faculty members. This class is for B.F.A. candidates only. Prerequisite(s): Permission of the instructor. Instructor(s): *Sparagana*

(F) = Fall; (S) = Spring

ARTV 522 STUDIO II: SCULPTURE (6)**Studio II: Sculpture**

Individual work in sculpture under the direction of one or more faculty members. This class is for B.F.A. candidates only. Prerequisite(s): Permission of the instructor. Instructor(s): *Smith*

ARTV 524 STUDIO II: DRAWING (6)**Studio II: Drawing**

Individual work in drawing under the direction of one or more faculty members. This class is for B.F.A. candidates only. Prerequisite(s): Permission of the instructor. Instructor(s): *Keeton*

ARTV 526 STUDIO II: LIFE DRAWING (6)**Studio II: Life Drawing**

Individual work in life drawing under the direction of one or more faculty members. This class is for B.F.A. candidates only. Prerequisite(s): Permission of the instructor. Instructor(s): *Keeton*

ARTV 530 STUDIO II: PRINTMAKING (6)**Studio II: Printmaking**

Individual work in printmaking under the direction of one or more faculty members. This class is for B.F.A. candidates only. Prerequisite(s): Permission of the instructor. Instructor(s): *Broker*

ARTV 532 STUDIO II: PHOTOGRAPHY (6)**Studio II: Photography**

Individual work in photography under the direction of one or more faculty members. This class is for B.F.A. candidates only. Prerequisite(s): Permission of the instructor. Instructor(s): *Winningham*

ARTV 534 STUDIO II: FILMMAKING (6)**Studio II: Filmmaking**

Individual work in filmmaking under the direction of one or more faculty members. This class is for B.F.A. candidates only. Prerequisite(s): Permission of the instructor. Instructor(s): *Huberman*

ARTV 546 STUDIO III: PHOTOGRAPHY (9)**Studio III: Photography**

Individual work in photography under the direction of one or more faculty members. This class is for B.F.A. candidates only. Prerequisite(s): Permission of the instructor. Instructor(s): *Winningham*

ARTV 548 STUDIO III: FILMMAKING (9)**Studio III: Filmmaking**

Individual work in filmmaking under the direction of one or more faculty members. This class is for B.F.A. candidates only. Prerequisite(s): Permission of the instructor. Instructor(s): *Huberman*

ASIA (ASIAN STUDIES)**School of Humanities/Asian Studies****ASIA 139 INTRO INDIAN RELIGIONS (3)****Introduction to Indian Religions**

This course will survey the four major religions which originated in India, namely Hinduism, Buddhism, Jainism, and Sikhism. Emphasis will be placed on the study of the scriptures of these religions. Also offered as RELI 139.

ASIA 140 INTRO CHINESE RELIGIONS (3)**Introduction to Chinese Religions**

Surveys the major Chinese religious traditions of Confucianism, Daoism and Buddhism. Readings will include both philosophical texts, historical and anthropological studies, as well as popular literature. Also offered as RELI 140. Course not offered 2004-2005

ASIA 170 THE ARTS OF CHINA (3)**The Arts of China**

History of the visual arts of China from Bronze Age to present. Special attention to the artworks' physical and social contexts. Included: funerary art and the imagination of the afterlife, art and imperial cosmology, rise of literati aesthetic, relationship between painting and calligraphy, and the emergences of propaganda avant-garde art in Modern China. Also offered as HART 170.

ASIA 211 INTRO TO ASIAN CIVILIZATIONS (3)**Introduction to Asian Civilizations**

Introduction to the great cultural traditions of Asia, past and present, with emphasis on evolving religious and philosophical traditions, artistic and literary achievements, and patterns of political, social, and economic change. Also offered as HIST 206. Enrollment limited to 70.

(#) = credit hours per semester

ASIA 221 LIFE OF PROPHET MUHAMMAD (3)**Life of the Prophet Muhammad**

This course will examine the life of the Prophet Muhammad, focusing on its significance for Muslims and for non-Muslims. Readings in The Qur'an, Ibn Hisham, and Haykal. Also offered as RELI 221. Course not offered 2004-2005.

ASIA 231 THE ENLIGHTENMENT OF THE BODY (3)**The Enlightenment of the Body**

Beginning with a historical survey of the American metaphysical tradition, this course turns to a close study of the Esalen Institute in Big Sur, California, as a unique window into some of the different ways the tradition has appropriated Asian religions, psychological models of the unconscious, and contemporary scientific paradigms. Also offered as RELI 231. Course not offered as 2004-2005.

ASIA 232 RELIGIONS FROM INDIA (3)**Religions from India**

This course will survey the four major religions which originate in India, namely Hinduism, Buddhism, Jainism and Sikhism. Emphasis will be placed on the study of scriptures of these traditions and their continuing global relevance, particularly in American history and culture. Also offered as RELI 232/500. Course not offered 2004-2005.

ASIA 234 INTRO TO INDIAN PHILOSOPHY (3)**Introduction to Indian Philosophy**

This course will survey the major schools of Indian philosophy, beginning with the ancient period of Vedic speculation, the formation of the distinct schools during the classical period, and their medieval developments. While the focus will be primarily on Hindu and Buddhist schools, Jain philosophy will also be covered. Also offered as RELI 234/504.

ASIA 235 INTRODUCTION TO TAOISM (3)**Introduction to Taoism**

Beginning with a survey of religious trends in ancient China, we will explore the development of the Taoist philosophy. We will then focus on religious Taoism, particularly the mystical and alchemical traditions. We will conclude by examining the fate of Taoism in post-Mao China and its international legacy. Course also offered as: RELI 235.

ASIA 240 GENDER&POLITICIZED RELIGION (3)**Gender and Politicized Religion**

This course examines the emergence of religion-based politics in various Asian countries-particularly Hindu and Muslim-focusing on the women participants in these movements as well as the movements' concern with gender roles in society. We will investigate, for instance, the extent to which women participants have been willing or able to reshape the central ideas of such movements. Also offered as WGST 240.

ASIA 250 MEDITATION, MYSTICISM & MAGIC (3)**Meditation, Mysticism, and Magic**

The course moves between Buddhist religious and Western psychological literature, analyzing these as models of human development, as guides to a meditative life or critiques of it, and above all as expressions of deeply rooted cultural proclivities. Reading Freud, Khakar, Milarepa, Norbu, Obeyesekere, Sutric and Tantric literature, Taylor and Wangyal. Also offered as RELI 250. Course not offered 2004-2005.

ASIA 280 THE ASIAN AMERICAN EXPERIENCE (3)**The Asian American Experience**

We shall explore the history of Asian immigration into the United States, as well as contemporary issues such as ethnic identity, racism, model minority stereotyping, interracial conflict, family structure, gender roles and relationships, and generational differences. We will analyze and discuss historical, social and literary texts, as well as documentary and feature films. Students will gain an appreciation of the cultural complexity of the Asian American community. Course not offered 2004-2005

ASIA 323 THE KNOWING BODY (3)**The Knowing Body: Buddhism, Gender, and The Social World**

Western thought tends to regard mind and body dualistically, a view with significant impact on religious cultural, gendered and social processes. This course juxtaposes received Western assumptions with Buddhist perspectives (especially Tibetan Buddhist), mapping Western and Buddhist categories onto each other to better understand the implications of each. Also offered as RELI 323/577, WGST 323, and SOCI 323. Course not offered 2004-2005.

ASIA 330 INTRO TRAD CHINESE POETRY (3)**Introduction to Traditional Chinese Poetry**

This course seeks to decode enchanting features of traditional Chinese poetry through examining the transformation of poetic genres, the interaction between poetic creation and political, social and culture changes, and the close association of poetry with art. Thus, this course also serves to understand Chinese culture and history through poetic perspectives. All readings in English translation. Also offered as CHIN 330.

(F) = Fall; (S) = Spring

ASIA 332 CHINESE FLM&MODRN CHINESE LIT (3)**Chinese Films and Modern Chinese Literature**

Exploration of modern Chinese literature through the visual imagery of Chinese films. Includes an analysis using literary history and narrative structure to link film adaptations to their original texts, with emphasis on narratology and movie theory. Films, subtitled in English, shown outside of class. All reading in English translation. Also offered as CHIN 332.

ASIA 334 TRADITIONAL CHINESE TALES (3)**Traditional Chinese Tales and Short Stories**

Learning Chinese literature and culture through reading vernacular stories, fantastic tales, biographies, and philosophical parables. Discussion topics: literature and Confucianism, Taoism, and Buddhism; literature and history; self and other; fantastic world and reality; women as domestic aliens and aliens portrayed as women, etc. Readings are in English translation. Also offered as CHIN 334.

ASIA 335 INTRO CLASCL CHINESE NOVELS (3)**Introduction to Classical Chinese Literature**

Examination of the basic characteristics of classical Chinese novels, primarily through six important works from the 16th to 18th centuries: Water Margin, Monkey, Golden Lotus, Scholars, Romance of the Three Kingdoms, and Dream of the Red Chamber. Also offered as CHIN 335.

ASIA 340 GENDER&POLITICIZED RELIGION (3)**Gender and Politicized Religion (Enriched Version)**

This course examine the emergence of religion-based politics in various Asian countries-particularly Hindu and Muslim-focusing on the women participants in these movements as well as the movements' concern with gender roles in society. We will investigate, for instance, the extent to which women participants have been willing or able to reshape the central ideas of such movements. Also offered as WGST 340.

ASIA 344 KOREAN LITERATURE AND CULTURE (3)**Korean Literature and Culture**

Exploration of selections from modern Korean literature and watching Korean films. Includes background survey of Korean history, philosophy and religion. All texts and films in English translation. No previous knowledge of Korean required. Also offered as KORE 344 and HUMA 344. Prerequisite(s): Permission of instructor.

ASIA 345 LINGUISTIC STRUCTURE OF KOREAN (3)**Linguistic Structure of Korean**

This course focuses on the origin of Korean and related languages. It explores the way the Korean language evolved and interacted with other East Asian languages, including Chinese and Japanese. The socio-linguistic aspect of these languages will be studied, including the difference in male and female language usage and the honorific systems. Also offered as KORE 345 and LING 345. Course not offered 2004-2005.

ASIA 346 KOREAN CULTURE AND HISTORY (3)**Korean Culture and History**

This course will introduce students to the important elements of Korean history and culture through a reading of modern Korean literature. The class will concentrate on the period from the early 20th century to the present. Special attention will be given to topics such as Korean religion, family life, and literature. Films will be used. All readings in English translation. Also offered as KORE 346. Course not offered 2004-2005.

ASIA 354 ASIAN APOCALYPTIC MOVEMENTS (3)**Apocalyptic and Millenarian Movements in Pre-Modern Asia**

This course will focus upon the rich and neglected apocalyptic and millennarian tradition of Asia, discussing Hinduism, Buddhism, Zoroasterianism, Manichaeism and Eastern Christianity as each of these faiths interact with and react to each other. Readings will be from scriptures and translations covering approximately the period between the first and nineteenth centuries. Also offered as RELI 354. Course not offered 2004-2005.

ASIA 360 CHINA AND THE CHINESE DIASPORA (3)**Transnational China: China and the Chinese Diaspora**

Exploration of the political, economic, and social forces changing the lives of nearly a quarter of humanity, the 1.4 billion people of Mainland China, Taiwan, Hong Kong, Singapore and the diasporic Chinese communities of East and Southeast Asia. Topics include political and economic liberalization, nationalism and urban identity, privatization and consumerism, environmentalism and public goods, and the globalization of communication technologies and Chinese cultural media.

ASIA 361 THE ORIENTAL RENAISSANCE (3)**The Oriental Renaissance**

This course will explore the European and American encounters with India from seventeenth-century France to twentieth-century America. Particular attention will be given to the translation of Sanskrit texts, the English and German Roman traditions, the depth psychology of C.G. Jung, and the American New Age. Also offered as RELI 361, 501. Course not offered 2004-2005.

ASIA 363 MARRIAGE OF HEAVEN AND HELL (3)**The Marriage of Heaven and Hell**

The history of mysticism is marked by symbolic systems and ritual practices suffused with erotic and ethical paradoxes. This course examines such themes in a wide variety of historical contexts, from Plato's dialogues and Blake's poetry to Christian mysticism, Hindu, and Buddhist Tantric traditions, and the modern study of religion. Also offered as RELI 363.

ASIA 365 CHIN MYSTICISM AND MEDITATION (3)**Chinese Mysticism and Meditation**

The course will investigate the major mystical and meditative traditions in Taoism, Buddhism and Neo-Confucianism. Focus will be placed upon the inner and outer traditions of Taoist alchemy, Buddhist meditation traditions (primarily Chan/Zen and Pure Land techniques), and the influence of these traditions upon Chinese intellectual discourse and the creative arts. Also offered as RELI 365. Course not offered 2004-2005.

ASIA 369 FILM, LIT & JAPANESE PAST (3)**Film, Literature, and the Japanese Past**

Every day, we retell our past to find meaning in our present. Authors and film directors in Japan have shaped national identities, created moral ideas, made sense of the horrors of war, and articulated new visions of the future--all through artistic reinterpretations of historical themes. In this class, we will examine both these allusions to the past and the uses to which they have been put in Japanese film and literature over the years. Also offered as HIST 369. Enrollment limited to 20.

ASIA 371 TRADITIONAL CHINESE PAINTING (3)**Traditional Chinese Painting**

This course examines the significance of the brushwork in traditional Chinese painting as performance, as expression of artistic personality, and as a system of gestures borrowed from the art of calligraphy. We will consider how historically shifting understanding of the brushwork served to express diverse aesthetic, social, and cultural concerns. Also offered as HART 371.

ASIA 372 SURVEY OF ASIAN AMERICAN LIT (3)**Survey of Asian American Literature**

Offered from time to time. Material covered will vary depending on instructor. Consult <http://www.english.rice.edu> for added course information. Also offered as ENGL 372.

ASIA 380 THE ASIAN AMERICAN EXPERIENCE (3)**The Asian American Experience**

We shall explore the history of Asian immigration into the United States, as well as contemporary issues such as ethnic identity, racism, model minority stereotyping, interracial conflict, family structure, gender roles, and relationships, and generational differences. We will analyze and discuss historical, social, and literary texts, as well as documentary and feature films. Students will gain an appreciation of the cultural complexity of the Asian American community. Course not offered 2004-2005.

ASIA 399 WOMEN IN CHINESE LITERATURE (3)**Women in Chinese Literature**

This course examines women's roles in Chinese literature as writers, readers, and characters, focusing particularly on the tension between women's lived bodily experiences and the cultural experiences inscribed on the female body and how, in the process, women have contrarily gendered patriarchal culture into their own. It will also touch on Chinese women's incorporation of the Western Tradition. Also offered as WGST 399.

ASIA 401 INDEPENDENT STUDY (3)**Independent Study**

Reading or research project to be determined by discussions between student(s) and faculty member(s).

ASIA 402 INDEPENDENT STUDY (3)**Independent Study**

Reading or research project to be determined by discussions between student(s) and faculty member(s).

ASIA 403 INDEPENDENT STUDY (HOURS VARIABLE)

(F) = Fall; (S) = Spring

ASIA 432 ISLAM IN SOUTH ASIA (3)**Islam in South Asia**

Topics will include emergence of Indian Muslim society; Muslim responses to colonialism and the movement for Pakistan; and the role of Islam in politics in contemporary India, Pakistan, and Bangladesh. Requires no prior knowledge of Islam or South Asia. Also offered as HIST 432 and WGST 432. Enrollment limited.

ASIA 441 POPULAR RELIGION IN MID EAST (3)**Popular Religion in the Middle East**

This course will examine the popular religion in the Middle East from Late Antiquity until the 19th century, focusing on healing practices, astrology, protection, amulets, seasoned/life-cycle rituals, and other popular beliefs common to Islam, Judaism and Christianity. Also offered as RELI 441.

ASIA 470 VISUAL CULTURE IN MODERN CHINA (3)**Visual Culture in Revolutionary and Postrevolutionary China (Ca. 1949-Present)**

Exploration of propaganda and avant-garde art in modern Chinese visual culture. Issues include: art as social movement, notions of political and artistic avant-garde, structure of authoritarian art, and paradox of counter-discourse. The course will draw on scholarship on Soviet and Third Reich German visual cultures, Euro-American mass culture and avant-garde art. Also listed as HART 470

ASIA 472 JAPANESE ANIMATION (3)**Japanese Animation: Narrative, History, and Society**

Since the 1980s, animation has become a major force in Japanese popular culture, serving as a medium to address the diverse concerns of a high-tech media-focused society. This seminar explores the social, historical, and aesthetic significance of Japanese animation. Topics include gender and sexuality, ecological consciousness and religious imagination, folklore and history, viewer ship and fandom, the centrality of the fantastic and the grotesque, visions of a media- and technology-saturated society, and the prevalence of apocalyptic motifs and conspiracy theory. Limited enrollment. Also offered as HIST 472, HART 472. Not offered 2004-2005

ASIA 473 TOPICS IN ASIAN AMERICAN LIT (3)**Topics in Asian American Literature**

Topics will vary from year to year. Also offered as ENGL 473. Course not offered 2004-2005.

ASIA 489 MIGRATIONS AND DIASPORAS (3)**Migrations and Diasporas in The Indian Ocean**

'Migrations and Diasporas in The Indian Ocean World.' presents an enormously varied arena of cultural exchange and interaction spanning coastal regions of Africa, the Middle East, South and Southeast Asia and Australia. This seminar introduces students to this fascinating region by examining societies and empires shaped by voyages of exploration, religious pilgrimages, trading diasporas and forced migration. Also offered as HIST 489. Limited enrollment. Course not offered 2004-2005.

ASTR (ASTRONOMY)**School of Natural Sciences/Physics and Astronomy****ASTR 100 EXPLORING THE COSMOS (1)****Exploring the Cosmos**

Introduction to concepts and methods used in astronomy and astrophysics, with a theme of "Astrobiology - Life in the Universe." Will include student presentations and web page development. For first-year students intending to major in science or engineering. Co-requisite: PHYS 102 or PHYS 112. Instructor(s): *Liang*

ASTR 201 STARS, GALAXIES&THE UNIVERSE (3)**Stars, Galaxies, and the Universe**

An introductory course for students in academic programs. The formation, evolution, and death of stars; the composition and evolution of galaxies; the structure and evolution of the universe. Instructor(s): *Oberlack, Hartigan*

ASTR 202 EXPLORATN OF THE SOLAR SYSTEM (3)**Exploration of the Solar System**

An introductory course for students in academic programs, surveying the sun, planetary motions, interplanetary fields and plasmas, the planets, their satellites and rings, and comets. The purposes and methods of manned and unmanned solar system explorations are also discussed. Instructor(s): *Reiff, Alexander*

ASTR 221 OBSERVING THE NIGHT SKY (1)**Observing the Night Sky**

Use of small telescopes and binoculars to study constellations, bright stars, planets and the sun at the campus observatory and at dark-sky sites. Modern analog and digital techniques will be used along with direct visual observation. Intended for students in academic programs. Prerequisite(s): One of ASTR 100, ASTR 201, ASTR 202. Instructor(s): *Dufour*

(#) = credit hours per semester

ASTR 230 ASTRONOMY LAB (3)**Astronomy Lab**

A hands-on introduction to modern techniques of observational astronomy. Students use telescopes, CCDs, and computers to obtain and analyze their own images of solar system, galactic, and extragalactic objects. This course involves field trips to dark sky observing sites such as George Observatory and makes extensive use of state-of-the-art data analysis software. Prerequisite(s): any one of the following courses plus consent of the instructor: ASTR 100, ASTR 201, ASTR 350, ASTR 360. Instructor(s): *Johns-Krull*

ASTR 350 INTRO ASTROPHYSICS-STARS (3)**Introduction to Astrophysics – Stars**

An introduction to celestial mechanics, radiative transfer, stellar structure, and stellar remnants (including black holes and neutron stars). Aspects of planetary science and solar system formation may also be explored. Together, ASTR 350 and ASTR 360 provide a comprehensive survey of modern astrophysics needed for senior research and graduate study in astronomy. Either ASTR 350 or 360 may be taken first. Prerequisite(s): MATH 211. Co-requisite: PHYS 202 or CHEM 312. Instructor(s): *Baring*

ASTR 360 INTRO ASTROPHYSIC-GALAXY&COSMO (3)**Introduction to Astrophysics – Galaxies and Cosmology**

Morphology, kinematics, and dynamics of the Milky Way and external galaxies, including interstellar matter and evidence for dark matter. Peculiar and active galaxies, including interacting systems and evidence for supermassive black holes in active galactic nuclei such as quasars. Large scale structure and expansion of the universe, including various cosmologies ranging from the inflationary big bang theory to steady-state and anthropic concepts. Either ASTR 350 or 360 may be taken first. Prerequisite(s): MATH 211. Co-requisite: PHYS 202 or CHEM 312. Instructor(s): *Dufor*

ASTR 400 UNDERGRADUATE RESEARCH SEMINAR (1)**Undergraduate Research Seminar**

Seminar on current research topics in astronomy, astrophysics, and space physics for juniors and seniors. Students will be expected to give one oral presentation each semester. May be repeated for credit. Instructor(s): *Liang, Dufour*

ASTR 402 TCHNG EARTH AND SPACE SCIENCE (3)**Teaching Earth and Space Science**

Overview of the Earth and the solar system, their structure, evolution, and dynamics. Fundamentals of Earth and Space Science topics as taught in 6th grade. Includes mathematics of solar motion at level of algebra and simple trigonometry. Includes teaching in use of Earth and solar system software and weather station software. This course is designed for science and math teachers (grades 6-12). One hour of lab per week. Also offered as PFDV 588. Instructor(s): *Reiff*

ASTR 403 ASTRONOMY FOR TEACHERS (3)**Astronomy for Teachers**

Learn how to teach astronomy concepts as specified by the state of Texas. This class provides the most basic concepts and what is necessary for students to master them, following the development specified in the TEKS. Lab activities suitable for replication in K-9 classrooms and as local field trip experience. Also offered as PFDV 589. Instructor(s): *Reiff*

ASTR 430 TEACHING ASTRONOMY LABORATORY (3)**Teaching Astronomy Laboratory**

Methods and facilities of observational astronomy for public education. Students will help train beginners in the use of telescopes and carry out a modest observational program of their own. The course requires one public talk to a nontechnical audience and internship work at the George Observatory and the Houston Museum of Natural Science. Prerequisite(s): ASTR 230, ASTR 350, ASTR 360 or permission of instructor. Instructor(s): *Reiff*

ASTR 450 EXPERIMENTAL SPACE SCIENCE (3)**Experimental Space Science**

Study of instruments and methods used in space physics and astronomy. May include the electromagnetic spectrum, cosmic rays, neutrinos, magnetic fields, and particles in the solar system, as well as discussion of special techniques for remote sensing or for the analysis of massive astronomical data sets. Prerequisite(s): ASTR 230 and 350, or permission of the instructor. Instructor(s): *Oberlack*

ASTR 451 ASTROPHYSICS I: SUN AND STARS (3)**Astrophysics I: Sun and Stars**

Undergraduate version of ASTR 551. Prerequisite(s): ASTR 350 or ASTR 360 and PHYS 301 and 302. Instructor(s): *Johns-Krull*

(F) = Fall; (S) = Spring

ASTR 470 SOLAR SYSTEM PHYSICS (3)**Solar System Physics**

The Sun, solar-terrestrial relationships, solar wind; planetary atmospheres, ionospheres and magnetospheres.

Prerequisite(s): PHYS 301 and 302. Instructor(s): *Cloutier*

ASTR 500 GRADUATE SEMINAR (1)**Graduate Seminar**

A presentation of current research programs in the department. Course may be repeated for credit.

Instructor(s): *Liang, Dufour*

ASTR 505 PROCESSES IN COSMIC PLASMAS (3)**Processes in Cosmic Plasmas**

Study of plasma phenomena that occur widely in nature. May include quasi-static equilibrium, magnetic equilibrium, magnetic reconnection, particle acceleration, plasma winds and jets, and interchange instabilities. Prerequisite(s):

ASTR 470 and PHYS 480. Course not offered 2004-2005. Instructor(s): *Staff*

ASTR 542 NEBULAR ASTROPHYSICS (3)**Nebular Astrophysics**

The physics of emission nebulae, including radiative transfer, photoionization and thermal equilibria, and internal gaseous dynamics. Physical processes in the interstellar medium. Course not offered 2004-2005. Instructor(s): *Staff*

ASTR 551 ASTROPHYSICS I: SUN AND STARS (3)**Astrophysics I: Sun and Stars**

Physics of stellar interiors and atmospheres; solar phenomena. Concepts of stellar evolution.

Instructor(s): *Jobns-Krull*

ASTR 552 ASTROPHYSICS II: GALAXY & COSMOLOGY (3)**Astrophysics II: Galaxies and Cosmology**

The physics of interstellar matter; structure of the Milky Way and other normal galaxies; physical cosmology and high-redshift phenomena. Instructor(s): *Liang*

ASTR 554 ASTROPHYSICS OF THE SUN (3)**Astrophysics of the Sun**

Analysis of physical processes at work in the sun, including topics such as helioseismology, solar variability, solar activity, magnetic reconnection, heliosphere interactions and modern solar observational techniques. Instructor: *Alexander*

ASTR 565 COMPACT OBJECTS (3)**Compact Objects**

Selected topics involving white dwarfs, neutron stars, black holes and their environments, e.g., pulsars, supernova remnants, and accretion disks. Course not offered 2004-2005. Instructor(s): *Staff*

ASTR 600 ADV TOPIC IN ASTROPHYSICS (3)**Advanced Topics in Astrophysics**

Lecture/seminars which treat topics of departmental interest. Not offered every year. Course not offered 2004-2005. Instructor(s): *Staff*

BIOE (BIOENGINEERING)**School of Engineering/Bioengineering****BIOE 252 BIOENGINEERING FUNDAMENTALS (3)****Bioengineering Fundamentals**

Introduction to material, energy, charge and momentum balances in biological systems. Steady-state and transient conservation equations for mass, energy, charge and momentum will be derived and applied using basic mathematical principles, physical laws, stoichiometry, and thermodynamics properties. Required for students intending to major in bioengineering. Offered only in the Fall semester. Prerequisite(s): PHYS 125 and 26 or PHYS 101 and 102, CHEM 121 and 122, MATH 101 and 102, CAAM 211 or 210. Co-requisite(s): MATH 211

Instructor(s): *San, Saterbak*

BIOE 320 SYSTEMS PHYSIOLOGY LAB MODULE (1)**Systems Physiology Lab Module**

Exploration of common biomedical equipment including EEG, ECG, pulmonary function test, etc. Students will explore concepts through computer simulations and data collection and analysis. Enrollment in or completion of BIOE 322 is expected. For students intending to major in Bioengineering. Enrollment limited to 9 per section.

Prerequisite(s): BIOE 322 and BIOE 252 Instructor(s): *Saterbak*

(#) = credit hours per semester

BIOE 321 CELLULAR ENGINEERING (3)**Cellular Engineering**

Introduction to engineering principles and modeling at the cellular level. Topics include cytomechanics, receptor/ligand binding, genetic engineering, enzyme kinetics, and metabolic pathway engineering. Prerequisite(s): BIOE 252 or permission of instructor. Instructor(s): *Athanasiou, San*

BIOE 322 FUND OF SYSTEMS PHYSIOLOGY (3)**Fundamentals of Systems Physiology**

This course will teach the fundamentals of physiology at the organism, tissue, and cellular levels. Emphasis will be on engineering aspects of physiology. Prerequisite(s): BIOS 201 and MATH 211. Instructor(s): *West*

BIOE 332 THERMODYNAMICS (3)**Thermodynamics**

This course will be mathematically rigorous coverage of the fundamentals of thermodynamics with applications drawn from contemporary bioengineering problems. Topics covered include thermodynamics of self assembly, the hydrophobic effect, polymer and membrane phase transitions, membrane transport, cell mechanics, electromechanical coupling in biological systems, nonequilibrium thermodynamics, open systems and statistical mechanics. Prerequisite(s): BIOE 252, BIOE 391, or permission of instructor. Instructor(s): *Raphael*

BIOE 342 LAB MODULE IN TISSUE CULTURE (1)**Lab Module in Tissue Culture**

Introduction to tissue culture techniques, including cell passage, cell attachment and proliferation assays, and a transfection assay. Sections 1 and 2 are taught during the first half of the semester. Sections 3 and 4 are taught during the second half of the semester. Section sign-up is required by the instructor in Keck 108 during pre-registration week. Enrollment limited to 12 per section. Also offered as BIOS 320. Prerequisite(s): BIOS 211 or CHEM 215 or permission of the instructor. Instructor(s): *Saterbak*

BIOE 372 INTRO BIOMECH&BIOMATERIALS (3)**Introduction to Biomechanics and Biomaterials**

The focus of this course is on the understanding of fundamental issues related to biomechanics of the human body, reactions of different types of tissue and synthetic material to load and the biomechanics of biomaterial. In examples, the effect of mechanical conditions on the human body function and the effect of tissue property on whole body behavior will be reviewed. Prerequisite(s): BIOE 252, MECH 211, or permission of the instructor. Instructor(s): *Liebschner*

BIOE 381 FUND OF ELECTROPHYSIOLOGY (3)**Fundamentals of Electrophysiology**

Introduction to cellular electrophysiology. Includes the development of whole-cell models for neurons and muscle (cardiac, skeletal and smooth muscle) cells, based on ion channel currents obtained from whole-cell voltage-clamp experiments. Ion balance equations are developed, as well as, those for chemical signaling agents such as "second messengers." The construction of small neuron circuits are discussed. Volume conductor boundary-value problems frequently encountered in electrophysiology are posed, and solutions obtained based on adequate descriptions of the bioelectric current source and the volume conductor (surrounding tissue) medium. This course provides a basis for the interpretation of macroscopic bioelectric signals such as the electrocardiogram (ECG), electromyogram (EMG) and electroencephalogram (EEG). Also offered as ELEC 381. Prerequisite(s): Consent of instructor. Instructor(s): *Clark*

BIOE 383 BIOMED ENGINEER INSTRUMENTATION (3)**Biomedical Engineering Instrumentation**

This is an introductory level course on fundamentals of biomedical engineering instrumentation and analysis. Topics include measurement principles; fundamental concepts in electronics including circuit analysis, data acquisition, amplifiers, filters and A/D converters; Fourier analysis; temperature, pressure, and flow measurements in biological systems. Laboratory sections will be offered 2-5pm on M,T,W, TH. Also offered as ELEC 383. Prerequisite(s): MATH 211/212, PHYS 126 or equivalent. CHEM 122, BIOS 201, BIOE 252 Instructor(s): *Anvari*

BIOE 384 BIOPHOTONICS INSTRUMENTATION (3)**Biophotonics Instrumentation and Applications**

Introduction to fundamentals of biophotonics instrumentation related to coherent light generation, transmission by optical components such as lenses and fibers, and modulation and detection. Interference and polarization concepts and light theories including ray and wave optics will be covered. Biomedical applications in optical sensing and diagnosis will be discussed. Prerequisite(s): MATH 211/212, PHYS 126 or equivalent and BIOS 201. Instructor(s): *Drezek*

(F) = Fall; (S) = Spring

BIOE 391 NUMERICAL METHODS & STATISTICS (3)**Numerical Methods and Statistics**

Introduction to numerical approximation techniques and statistical methods with bioengineering applications. Topics include error propagation, Taylor's Series expansions, roots of equations, numerical differentiation and integration techniques for solving ordinary differential equations. Statistical methods for hypothesis testing, analysis of variance, probability and regression analysis are also covered. Matlab and other software will be used for solving equations. Prerequisite(s): MATH 211 or 212 and CAAM 210 or 211. Instructor(s): *Grande-Allen*

BIOE 400 UNDERGRADUATE RESEARCH (HOURS VARIABLE)**Undergraduate Research**

Independent investigation of a specific topic or problem in modern bioengineering research under the direction of a selected faculty member. May be repeated for credit. Prerequisite(s): Permission of instructor. Instructor(s): *San*

BIOE 420 BIOSYSTEMS TRANSPORT&REACTION (3)**Biosystems Transport and Reaction Processes**

The principles of reaction kinetics and transport phenomena will be used to quantitatively describe biological systems. Cell biology, physiology, anatomy, and materials science topics will be covered as background for the study of cell membrane transport, receptor-ligand interactions, and normal organ function. Models will be introduced to describe pathological conditions, drug pharmacokinetics, and artificial organ designs. Also offered as CENG 420. Prerequisite(s): MATH 211/212. Instructor(s): *Mikos*

BIOE 425 PHARMACEUTICAL ENGINEERING (3)**Pharmaceutical Engineering**

This course will examine how pharmaceutical active agents function in the body and how they are delivered to the body. Topics to be covered include the kinetics of drug absorption and tissue distribution along with the transport phenomena associated with the release bioactive agents. Focus will be placed on mathematical modeling of pharmacokinetic and diffusional processes. Prerequisite(s): BIOE 420 or permission of instructor. Instructor(s): *Nichol*

BIOE 440 STATISTICS FOR BIOENGINEERING (1)**Statistics for Bioengineering**

Course covers application of statistics to bioengineering. Topics include descriptive statistics, estimation, hypothesis testing, ANOVA, and regression. Required for students not taking BIOE 391. Prerequisite(s): CAAM 210 or CAAM 211 Instructor(s): *Saterbak*

BIOE 441 ADV BIOENG LAB&STATISTICS (4)**Advanced Bioengineering Lab and Statistics**

Laboratory modules include biomaterial synthesis and characterization, systems physiology, ethics, mechanical testing of bone and skin, laser tweezers. Lectures focus on application of statistics in bioengineering. Required for students majoring in bioengineering. Prerequisite(s): BIOE 342, BIOE 252, & BIOE 372 Instructor(s): *Saterbak*

BIOE 442 TISSUE ENGINEERING LAB MODULE (1)**Tissue Engineering Lab Module**

Students conduct a series of tests to synthesize PLLA, characterize PLLA and PLGA, monitor PLLA and PLGA degradation, and assess the viability, attachment, and proliferation of HDF cells on PLLA films. The experiments include many of the basic types of experiments that would be required to do a preliminary investigation of a tissue engineered product. Sections 1 and 2 will be taught during the first half of the semester and sections 3 and 4 will be taught during the second half of the semester. In addition sections 1 and 3 will need to come into lab on 2-3 Fridays and sections 2 and 4 will need to come into lab on 2-3 Saturdays. Section sign-up is required by the instructor in Keck 108 during pre-registration week. Enrollment limited to 8. Prerequisite(s): BIOE 342 Instructor(s): *Saterbak*

BIOE 443 BIOPROCESSING LAB MODULE (1)**Bioprocessing Lab Module**

Students conduct a series of experiments to observe the growth of E. coli under different conditions, including agar platters, shake flasks, and a small-scale bioreactor. The E. coli has been transformed with a plasmid that produces beta-galactosidase. Some work "off hours" (early evening) is required. Section 1 is taught in the first half of the semester and Sections 2 and 3 will be taught in the second half of the semester. Section sign-up is required by the instructor in Keck 108 during pre-registration week. Enrollment limited to four. Prerequisite(s): BIOE 342. Instructor(s): *Saterbak*

BIOE 342. Instructor(s): *Saterbak*

(#) = credit hours per semester

BIOE 444 MECHANICAL TESTING LAB MODULE (1)**Mechanical Testing Lab Module**

Students conduct a series of tests to elucidate the mechanical and material properties of chicken bones, tendons, and skin using the Instron. Students also test biodegradable sutures and materials that have been repaired with sutures. Sections 1 through 5 will be taught in the first half of the semester. Sections 6 through 11 will be taught in the second half of the semester. Section sign-up is required by the instructor in Keck 108 during the pre-registration week. Enrollment limited to 2 Prerequisite(s): BIOE 372. Instructor(s): *Staff*

BIOE 445 ADVNCD INSTRMNTN LAB MODULE (1)**Advanced Instrumentation Lab Module**

Students study and test a biomedical instrument or device. Taught in the second half of the semester. Sign up in Keck 108 during pre-registration week. Instructor(s): *Staff*

BIOE 451 BIOENGINEERING DESIGN I (3)**Bioengineering Design I**

Senior Bioengineering students will design devices in biotechnology or biomedicine. This project-based course covers systematic design processes, engineering economics, FDA requirements, safety, engineering ethics, design failures, research design, intellectual property rights, business planning and marketing. Students will be expected to compile concise documentation and present orally progress of their teams. It is required that students take both parts of this course in the same school year. Instructor(s): *Oden*

BIOE 452 BIOENGINEERING DESIGN II (3)**Bioengineering Design II**

Senior Bioengineering students will design devices in biotechnology or biomedicine. This project-based course covers systematic design processes, engineering economics, FDA requirements, safety, engineering ethics, design failures, research design, intellectual property rights, business planning and marketing. Students will be expected to compile concise documentation and present orally progress of their teams. It is required that students take both parts of this course in the same school year. Instructor(s): *Oden*

BIOE 454 FINITE ELEM MTHDS FLUID MECHAN (3)**Finite Element of Methods in Fluid Mechanics**

Fundamental concepts of finite element methods in fluid mechanics, including spatial discretization and numerical integration in multidimensions, time-integration, and solution of nonlinear ordinary differential equation systems. Advanced numerical stabilization techniques designed for fluid mechanics problems. Strategies for solution of complex, real-world problems. Topics in large-scale computing, parallel processing, and visualization. Also offered as CEVE 454 and MECH 454. Prerequisite(s): MECH 371 or permission of the instructor. Instructor(s): *Tezduyar*

BIOE 460 BIOCHEMICAL ENGINEERING (3)**Biochemical Engineering**

Design, operation, and analysis of processes in the biochemical industries. Topics include enzyme kinetics, cell growth kinetics, energetics, recombinant DNA technology, microbial, tissue and plant cell cultures, bioreactor design and operation, and down stream processing. Also offered as CENG 460. Instructor(s): *San*

BIOE 464 EXTRACELLULAR MATRIX (3)**Extracellular Matrix**

This course will address the biology, organization, mechanics, and turnover of extracellular matrix. There will be an emphasis on cells and cell-matrix interactions, matrix distributions in connective tissues and organs, techniques for measurement and modeling, changes with growth and aging, and tissue/matrix degradation including enzyme kinetics. Prerequisite(s): BIOE 372 or permission of instructor. Instructor(s): *Grande-Allen*

BIOE 472 EXPERIMENTAL TECHNQ BIOENGGR (3)**Experimental Techniques in Bioengineering**

Introduction to experimental techniques used in bioengineering to assess biomaterials and tissues. This course will primarily concentrate on basic concepts of measurement methods, experimental design, signal analysis, and the development of experimental protocols. In laboratory modules focusing on mechanical testing of non-Newtonian materials, parameter extraction out of signal data sets, and electronic circuits. The theoretical concepts covered in class will be implemented hands-on. Prerequisite(s): BIOE 372 or permission of the instructor. Instructor(s): *Liebschner*

BIOE 481 COMPUTATIONAL NEUROSCIENCE (3)**Computational Neuroscience**

Introduction to the nervous system is given including the electrophysiology of nerve and muscle cells, synaptic transmission and sense receptors. The theory underlying Hodgkin-Huxley type models of excitable cells is discussed and several examples of models for neurons, muscle cells and synapses are used as case studies. Modeled neurons are interconnected using synaptic models to form functional representations of small neural networks. At all levels comparisons are made with experimental data. Course provides an introduction to biological modeling and computation. Also offered as ELEC 481. Instructor(s): *Clark*

(F) = Fall; (S) = Spring

BIOE 482 PHYSIOLOGICAL CONTROL SYSTEMS (3)**Physiological Control Systems**

Nervous system control of biological systems can be represented utilizing techniques common to the field of linear, nonlinear or adaptive control theory. This course begins with a review of the basic aspects of control theory, followed by detailed discussion of the structure of several biological systems including the visual, cardiovascular and pulmonary systems. Specific examples of neural control are developed for each system utilizing modeling and simulation techniques. Parameter sensitivity analysis and parameter estimation techniques are likewise brought to bear on some of these models to achieve good least-squares fits to experimental data. Also offered as ELEC 482. Instructor(s): *Clark*

BIOE 485 FUND MEDICAL IMAGING I (3)**Fundamentals of Medical Imaging I**

The course will introduce basic medical imaging modalities, such as x-ray, CT, and MRI, used to identify the anatomy of human organs, as well as other modalities, such as PET, SPECT, fMRI, and MEG, specifically developed to localize brain function. The course includes visits to clinical sites. Also offered as ELEC 485 and COMP 485. Prerequisite(s): Permission of the instructor. Instructor(s): *Mawlawi*

BIOE 486 FUND MEDICAL IMAGING II (3)**Fundamentals of Medical Imaging II**

This course is directed towards graduate and senior undergraduate students interested in acquiring an in depth knowledge of Positron Emission Tomography (PET). The course will focus on PET physical principles, image formation, and processing. The course will also cover the various correction techniques used to quantify PET images as well as lay the foundations for understanding tracer kinetic modeling. A field trip to MD Anderson's PET facility will be organized to provide the students with hands on experience of PET imaging and data analysis. The use of PET imaging in various medical applications will also be covered. Also offered as ELEC 486 and COMP 486. Instructor(s): *Mawlawi*

BIOE 492 SENSORY NEUROENGINEERING I (3)**Sensory Neuroengineering I**

This course will explore how bioengineering techniques and principles are applied to sensory systems, with a focus on the auditory, vestibular, and retinal systems. The interaction between the electrical, mechanical and optical aspects of these systems, and ways to modulate these interactions, will be explored. Design and current technologies used as auditory and visual prosthetics will be covered. Enrollment limited to 15. Prerequisite(s): BIOE 322, BIOE 332, or permission of instructor. Instructor(s): *Raphael*

BIOE 500 GRADUATE RESEARCH (HOURS VARIABLE)**Graduate Research**

Instructor(s): *Staff*

BIOE 505 OPTICAL IMAGING (3)**Optical Imaging**

This course includes a theoretical portion which will introduce the fundamentals of optical imaging of neural activity, present the devices that are employed, and review applications and discuss their results. In addition, in a practical part, students will design, set up, and perform simple in vitro experiments to gain practical experience with this exciting and powerful technology. Course meets in S744, Vivian Smith Res. Bldg., Baylor College of Medicine. Instructor(s): *Saggau*

BIOE 520 BIOSYSTEMS TRANSPORT PHENOMENA (3)**Biosystems Transport Phenomena**

The principles of transport phenomena will be used to quantitatively describe biological systems. Prerequisite(s): Permission of the instructor. Instructor(s): *Deem*

BIOE 522 GENE THERAPY COURSE (3)**Gene Therapy Course**

This course will review the principles and strategies underlying gene therapy approaches in animal models and human beings. The current methods for gene delivery to cells ex vivo and in vivo will be discussed along with current cutting-edge approaches for improving the specificity and persistence of gene expression. The course will also cover current disease applications of gene therapy and the strategies taken to produce therapeutic results. Regulatory issues concerning biomaterials will also be addressed. Prerequisite(s): CHEM 212, BIOS 201 Limited to Graduate Students.

(#) = credit hours per semester

BIOE 531 BIOMATERIALS ENGINEERING (3)**Biomaterials Engineering**

Emphasis will be placed on issues regarding design and synthesis of materials to achieve specific properties and biocompatibility. An overview of significant biomaterials application will be given, including topics such as ophthalmic biomaterials, orthopedic applications, cardiovascular biomaterials, and drug delivery systems. Regulatory issues concerning biomaterials will also be addressed. Prerequisite(s): Organic chemistry and biology. Instructor(s): *West*

BIOE 551 INTRODUCTION TO BIOENGINEERING (1)**Introduction to Bioengineering**

Seminar/tutorial introducing current research in bioengineering and biotechnology to acquaint students with activities of various labs at Rice and the Texas Medical Center. Also offered as CENG 551. Prerequisite(s): Graduate standing or permission of the instructor. Instructor(s): *Deem*

BIOE 554 FINITE ELEMENT METH FLUID MECH (3)**Finite Element Methods in Fluid Mechanics**

Graduate version of BIOE 454. Additional work required. Prerequisite(s): MECH 371 and MECH 517 or permission of the instructor. Instructor(s): *Tezduyar*

BIOE 572 FUND SYSTEMS PHYSIOLOGY (3)**Fundamentals of Systems Physiology**

This course will teach the fundamentals of physiology at the organism, tissue, and cellular levels. Emphasis will be on engineering aspects of physiology. Prerequisite(s): BIOS 201, MATH 212 Instructor(s): *Drezek*

BIOE 575 CONTINUUM BIOMECHANICS (3)**Continuum Biomechanics**

Biomechanics models at an advanced mathematical level. Selected topics in tensor analysis, continuum biomechanics, mixture theories, elasticity, and viscoelasticity. Applications in soft and hard tissues. Prerequisite(s): BIOE 372 or permission of the instructor. Instructor(s): *Atbanasiou*

BIOE 576 FOUNDATIONS OF BIOTECHNOLOGY (1)**Foundations of Biotechnology**

Graduate level introduction to a wide range of research methods in biosciences and bioengineering. Individual faculty members from the Biosciences and Bioengineering will each present practices and techniques for their areas of expertise. A web-based methods database will be constructed, with student involvement, from the library of lectures. Also offered as BIOS 576.

BIOE 577 FOUNDATIONS OF BIOTECHNOLOGY (1)**Foundations of Biotechnology**

Graduate level introduction to a wide range of research methods in biosciences and bioengineering. Individual faculty members from the biosciences and bioengineering will each present practices and techniques for their areas of expertise. A web-based methods database will be constructed, with student involvement, from the library of lectures. Prerequisite(s): Graduate students only. Instructor(s): *Staff*

BIOE 581 CARIOVASCULAR DYNAMICS (4)**Cardiovascular Dynamics**

Analysis of properties and functions of the cardiovascular system. Includes detailed study of cardiac electrophysiology, ventricular mechanics, arterial hemodynamics, coronary and cerebral circulations, heart rate control, and imaging methods for determining ventricular volume and output flow, as well as therapeutic devices and computer-controlled drug delivery systems with their mathematical models. Internship project with engineer or life scientist working in the Texas Medical Center required. Not offered every year. Also offered as ELEC 481. Prerequisite(s): ELEC 481, 482, and 507 or equivalent. Instructor(s): *Clark*

BIOE 584 LASERS IN MEDICINE&BIOENGINEER (3)**Lasers in Medicine And Bioengineering**

This course will provide an overview of various types of interactions between lasers and biological tissues. Methods of optical properties measurements, mathematical modeling of light propagation, and selected therapeutic applications of lasers will be addressed. Optically based diagnostic procedures, including absorption and scattering-based techniques, will be introduced. Physics of optical tweezers and their applications in biomedical sciences will be discussed. Prerequisite(s): Differential Equations, Introductory Physics, and Engineering Computation Instructor(s): *Anvari*

(F) = Fall; (S) = Spring

BIOE 589 COMPUTATIONAL MOLECULAR BIOENG (3)**Computational Molecular Bioengineering**

This is a course designed for students in computationally-oriented biomedical and bioengineering majors to introduce the principles and methods used for the simulations and modeling of macromolecules of biological interest. Protein conformation and dynamics are emphasized. Empirical energy function and molecular dynamics calculations are described. Specific biological problems are discussed to illustrate the methodology. Classic examples such as the cooperative mechanism of hemoglobin and more frontier topics such as the motional properties of molecular motors and ion channels as well as results derived from the current literature are covered. Suggested Prerequisite(s): MATH 212, BIOS 301, BIOE 332. Also offered as BIOS 589. Instructor(s): *Ma*

BIOE 592 SENSORY NEUROENGINEERING I (2)**Sensory Neuroengineering I**

This course will explore how bioengineering techniques and principles are applied to sensory systems, with a focus on the auditory, vestibular, and retinal systems. The interaction between the electrical, mechanical and optical aspects of these systems, and ways to modulate these interactions, will be explored. Design and current technologies used as auditory and visual prosthetics will be covered. Instructor(s): *Raphael*

BIOE 594 ETHICS OF BIOSCI&BIOENG RESRCH (1)**The Ethics of Biosciences and Bioengineering Research**

This course will consider ethical issues involving human and animal subjects, record keeping, publications, potential conflict of interest, and behavior toward colleagues, research fellows, students, and employees. Also offered as BIOS 594. Enrollment limited to 40. GRADUATE STUDENTS ONLY. Instructor(s): *Staff*

BIOE 610 METHODS OF MOLECULAR SIMUL (3)**Methods of Molecular Simulation**

Modern simulation techniques for classical atomistic systems. Review of statistical mechanical systems. Monte Carlo and molecular dynamics simulation techniques. Extensions of the basic methods to various ensembles. Applications to simulations of large molecules such as proteins. Advanced techniques for simulation of complex systems, including constraint satisfaction, cluster moves, biased sampling, and random energy models. Prerequisite(s): CENG 611 or BIOE/BIOS 589 or CHEM 520 or PHYS 526 or permission of instructor. Instructor(s): *Deem*

BIOE 620 TISSUE ENGINEERING (3)**Tissue Engineering**

Study of cell-cell interactions and the role of the extracellular matrix in the structure and function of normal and pathological tissues. Includes strategies to regenerate metabolic organs and repair structural tissues, as well as cell-based therapies to deliver proteins and other therapeutic drugs, with emphasis on issues related to cell and tissue transplantation such as substrate properties, angiogenesis, growth stimulation, cell differentiation, and immunoprotection. Also offered as CENG 620. Instructor(s): *Mikos*

BIOE 625 PHARMACEUTICAL ENGINEERING (3)**Pharmaceutical Engineering**

This course will examine how pharmaceutical active agents function in the body and how they are delivered to the body. Topics to be covered include the kinetics of drug absorption and tissue distribution along with the transport phenomena associated with the release bioactive agents. Focus will be placed on mathematical modeling of pharmacokinetic and diffusional processes. Graduate version of BIOE 425. Instructor(s): *Nichol*

BIOE 654 ADV COMPUTATIONAL MECHANICS (3)**Advanced Computational Mechanics**

Advanced topics in computational mechanics with emphasis on finite element methods and fluid mechanics. Stabilized formulations. Fluid-particle and fluid-structure interactions and free-surface and two-fluid flows. Interface tracking and interface-capturing techniques, space-time formulations, and mesh update methods. Enhanced discretization and solution techniques. Iterative solution methods, matrix-free computations, and advanced preconditioning techniques. Also offered as MECH 654 and CEVE 654. Prerequisite(s): MECH 554 or permission of instructor. Instructor(s): *Tezduyar*

BIOE 690 TOPIC:INTR BIOMECH & BIOMATERIAL (3)**Special Topics Course: Introduction to Biomechanics And Bioengineering**

Introduction to the fundamentals of Biomechanics including force analysis, mechanics of deformable bodies, stress and strain, multiaxial deformation, and viscoelasticity. Biomechanics of soft and hard tissues. Physical and chemical properties of biomaterials. Materials covered include both natural and synthetic ones intended to function in the biological environment. Instructor(s): *Liebschner*

(#) = credit hours per semester

BIOE 695 ADV MODELING TISSUE MICROMECH (3)**Advanced Modeling of Tissue Micromechanics**

Continuation of MECH 595/BIOE 595 with emphasis on advanced modeling the micromechanics of biological tissues. Independent study and seminar/discussion course. Data from experiments will be used to refine the predictions of mathematical models. Designed for juniors, seniors, and graduate students. Laboratory work performed at Baylor College of Medicine and Computer work at Rice University. Prerequisite(s): BIOE 595 Instructor(s): *Boriek*

BIOE 698 GRADUATE SEMINAR (1)**Graduate Seminar**

Instructor(s): *Staff*

BIOE 699 GRADUATE SEMINAR (1)**Graduate Seminar**

Instructor(s): *Drezek*

BIOS (BIOSCIENCES)**School of Natural Sciences/Biosciences****BIOS 113 ENVIRONMENTAL CRISIS SEMINAR (1)****Environmental Crisis Seminar: Water**

Water—one of the most basic and important components of the environment. But how is the water cycle changing and what are the current issues? In this semester's course we will discuss the water from an interdisciplinary perspective, from reservoirs and flow, through life and uses, to pollution and rights. Also offered as ESCI 113 and ENST 113.

BIOS 122 FUND CONCEPTS IN BIOLOGY (3)**Fundamental Concepts in Biology**

Current topics in biological research with an emphasis on human health. Topics include the Human Genome Project, transgenic plants, cancer, heart disease, viruses, and others. Papers from scientific journals covering novel techniques and advances in medicine will be discussed. Instructor(s): *Bondos*

BIOS 201 INTRODUCTORY BIOLOGY (3)**Introductory Biology**

The first in an integrated sequence of three courses (Bios 201, 202, 301). Chemistry and energetics, cell physiology, cell biology, Mendelian genetics, plant physiology, and animal physiology. Instructor(s): *Gustin*

BIOS 202 INTRODUCTORY BIOLOGY (3)**Introductory Biology**

The second in an integrated sequence of four courses (Bios 201, 202, 301, 302). Molecular genetics, DNA technology, antibiotics and antivirals, behavior, evolution, ecology, diversity, and conservation biology. Prerequisite(s): BIOS 201 Instructor(s): *Gomer, Meffert*

BIOS 211 INTRO EXPERIMENTAL BIOSCIENCES (2)**Introduction to Experimental Biosciences**

WARNING: Your registration for this course will NOT be accepted until you sign up at <http://www.ruf.rice.edu/~bioslabs/bios211/> Introduction to the scientific method, principles of experimental design, selected research strategies, record keeping, and technical communication as related to biological science. Taught in the first half of each semester. Instructor(s): *Caprette*

BIOS 213 INTRO LAB MOD ECOL & EVOL BIO (1)**Intro Lab Mod Ecology and Evolutionary Biology**

Experimental, laboratory, and field studies of natural history, ecology, evolution, and animal behavior. Computer simulations of population genetics. Course will begin after mid-semester break in the Fall semester and after mid-term recess in the Spring semester. Instructor(s): *Sullender*

BIOS 301 BIOCHEMISTRY (3)**Biochemistry**

The third in an integrated sequence of four courses (Bios 201, 202, 301, 302). Structure and function of proteins, enzymes, and nucleic acids; enzyme kinetics; glycolysis, aerobic metabolism, and energy coupling. Instructor(s): *Olson, Shamoo*

BIOS 302 BIOCHEMISTRY (3)**Biochemistry**

The final in an integrated sequence of four courses (Bios 201, 202, 301, 302). Introduction to metabolism, membranes, electron transport, oxidative phosphorylation, and regulation. Group A course. Instructor(s): *Mackenzie, Shamoo*

(F) = Fall; (S) = Spring

BIOS 305 WRITING & VISUAL DESIGN IN BIO (1)**Writing and Visual Design in the Biosciences**

Course works with a single biosciences topic of current interest to develop skills in designing visuals (posters, report figures, PowerPoint), structuring arguments, writing about visual evidence (for example: Northern blots, graphs, photographs), and editing for style. Helps prepare students for moving from BIOS 211 to BIOS 311. No oral presentations. Taught second half of the semester for 7 weeks.

BIOS 307 GENETICS (3)**Genetics: Biological, Culture-Historical, and Ethical Perspectives**

The course uses an interdisciplinary perspective. The course will cover biological basics of genes, DNA, and sequencing techniques; cultural and historical aspects to genetics, including essentialism and eugenics and policy issues. Not open to Freshmen. Also offered as UNIV 314 and ANTH 314. Instructor(s): *McIntosh, Novotny*

BIOS 309 SEM IN RESEARCH METHODOLOGY (2)**Seminar in Research Methodology**

A course based on laboratory research done outside the university which will use seminars, discussion and papers to develop communication skills in research. Permission of chair to enroll. Instructor(s): *Bennett*

BIOS 310 IND STUDY FOR UNDERGRADUATES (HOURS VARIABLE)**Independent Study for Undergraduates**

Program of independent study for students with previous training in the biosciences. Includes a research paper. Students are expected to spend at least three hours per week in the laboratory for each semester hour of credit. If taken for 2 or more hours, counts as one required lab course but not as a Group A or Group B course. If receiving more than 2 credits, students will be required to participate in the university annual undergraduate symposium in the spring semester. Permission of the instructor is required. Prerequisite(s): BIOS 211 Instructor(s): *Bennett, Meffert*

BIOS 311 ADV EXPERIMENTAL BIOSCIENCES (1)**Advanced Experimental Biosciences**

WARNING: Your registration for this course will NOT be accepted until you obtain Dr. Beason's signature (bbeason@rice.edu). Introduction to biochemical laboratory techniques with an emphasis on studies of proteins. Taught first half of the semester for 7 weeks. Enrollment limited to 24 per section. Prerequisite(s): BIOS 301, BIOS 211, or permission of the instructor. Instructor(s): *Beason*

BIOS 312 EXPERIMENTAL MOLECULAR BIO (1)**Experimental Molecular Biology**

WARNING: Your registration for this course will NOT be accepted until you obtain Dr. Beason's signature (bbeason@rice.edu). Introduction to molecular biology techniques. Taught first or second half of the semester for 3 1/2 weeks. Enrollment limited to 24 per section. Prerequisite(s): BIOS 311 or permission of instructor. Instructor(s): *Beason*

BIOS 313 ADV EXPERIM MOLEC BIOLOGY (1)**Advanced Experimental Molecular Biology**

WARNING: Your registration for this course will NOT be accepted until you obtain Dr. Beason's signature (bbeason@rice.edu). Introduction to microarrays. Taught second half of the spring semester for 3 1/2 weeks. Enrollment limited to 15 per section. Prerequisite(s): BIOS 312 or permission of instructor. Instructor(s): *Beason*

BIOS 314 EXPERIMENTAL CELL BIOLOGY (1)**Experimental Cell Biology**

Application of transmission electron microscopy to research in cell biology. Students will interview a faculty investigator and design and conduct an experiment involving preparation and examination of samples for the electron microscope. Recommended for students interested in a research career. Contact the instructor first week of classes. Limited enrollment. Course not offered 2004-2005. Instructor(s): *Caprette*

BIOS 315 EXPERIMENTAL PHYSIOLOGY (1)**Experimental Physiology**

An instrumentation-intensive short course in membrane electrophysiology and vertebrate nerve and muscle physiology. Research reports require interpretation of laboratory data in terms of concepts at the molecular level. Starts the second half of the semester. Limited enrollment. Prerequisite(s): BIOS 301 or equivalent and BIOS 311. Instructor(s): *Caprette*

BIOS 316 LAB MODULE IN ECOLOGY (1)**Lab Module in Ecology**

Field and lab experiments in ecology. Course taught for 1/2 semester. Instructor(s): *Harcombe; Siemann*

(#) = credit hours per semester

BIOS 317 LAB MODULE IN BEHAVIOR (1)**Lab Module in Behavior**

Field experiments in behavior. Learn to formulate and test hypotheses on bird behavior using mockingbirds, grackles, and herons nesting on campus.

BIOS 318 LAB MODULE IN MICROBIOLOGY (1)**Lab Module in Microbiology**

Training in the isolation, culture, observation, and assay of bacteria. Qualitative analysis of water and mixed bacterial cultures. Starts the second half of the semester, self-scheduled after the first four formal meetings. Requires daily attention to cultures during the week. Limited enrollment. Prerequisite(s): BIOS 311 Instructor(s): *Caprette*

BIOS 319 TROPICAL FIELD BIOLOGY (3)**Tropical Field Biology**

The course consists of weekly meetings involving lectures and discussion of readings. Immediately following commencement, a 3-week field trip to southern Mexico will conclude the class. Selection of students for the course is determined through an interview with the instructor. While a background in biology is desirable (minimally including the following courses: Bios 201, 202, and 213), individuals lacking this background but having a special interest in the tropics are encouraged to enroll. Class size: between 9 and 11 students.

BIOS 320 LAB MODULE IN TISSUE CULTURE (1)**Lab Module in Tissue Culture**

Introduction to tissue culture techniques, including cell passage, cell attachment and proliferation assays, and a transfection assay. Taught in first and second halves of spring semester. See BIOE 342 for preregistration procedure. Also offered as BIOE 342.

BIOS 321 ANIMAL BEHAVIOR (3)**Animal Behavior**

Evolutionary theory is used to evaluate behavioral adaptations of organisms to their environment. Group B course. Instructor(s): *Staff*

BIOS 322 GLOBAL ECOSYSTEM DYNAMICS (3)**Global Ecosystem Dynamics**

A systems analysis of the Earth from a biological perspective stressing biogeochemical cycles and global change. Group B course.

BIOS 323 CONSERVATION BIOLOGY (3)**Conservation Biology**

The course is designed to give students a broad overview of conservation biology. Lecture and discussions will focus on conservation issues such as biodiversity, extinction, management, sustained yield, invasive species and preserve design. Group B course.

BIOS 324 WETLAND ECOSYSTEMS (3)**Wetland Ecosystems**

A study of coastal wetland systems including floodplains, freshwater brackish and saline marshes and consideration of estuaries and riverine interaction with coastal marine waters. Group B course.

BIOS 325 ECOLOGY (3)**Ecology**

Analysis of population dynamics, species interactions, plant and animal community organization, and ecosystem function. Group B course. Instructor(s): *Holland*

BIOS 329 ANIMAL BIOLOGY AND PHYSIOLOGY (3)**Animal Biology and Physiology**

The evolution and systematics of the animal kingdom with consideration of functional anatomy, comparative physiology, behavior, medical implications and resource management. Group B course. Instructor(s): *Fisher*

BIOS 332 FUND SYSTEMS PHYSIOLOGY (3)**Fundamentals of Systems Physiology**

This course will teach the fundamentals of physiology at the organism, tissue, and cellular levels. Emphasis will be on engineering aspects of physiology. This course includes several projects and written assignments. Also offered as BIOE 322. Group A course.

BIOS 334 EVOLUTION (3)**Evolution**

Principles of biological evolution. Topics include natural selection, adaptation, molecular evolution, formation of new species, the fossil record, biogeography, and principles of classification. Group B course. Instructor(s): *Staff*

(F) = Fall; (S) = Spring

BIOS 336 PLANT DIVERSITY (3)**Plant Diversity**

The evolution and systematics of plants, with emphasis on flowering plants and biodiversity. Group B course. Enrollment limited to 20.

BIOS 341 CELL BIOLOGY (3)**Cell Biology**

Molecular mechanisms of the processes common to all cells, including exposition of structure, function, and biogenesis of all subcellular organelles. Emphasis will be on cytoplasmic events; molecular studies of transcription will be taught in Bios 344. Group A course. Prerequisite(s): BIOS 201/202 Instructor(s): *McNew, Braam*

BIOS 344 MOLECULAR BIOLOGY & GENETICS (3)**Molecular Biology and Genetics**

Mendelian genetics, population genetics, mapping, gene expression and regulation, genetic engineering, DNA replication and recombination, human genetics, genetic disease and gene therapy. Group A course. Prerequisite(s): BIOS 201/202 or permission of the instructor. Instructor(s): *Stewart*

BIOS 352 PHYS CHEM FOR BIOSCIENCES (3)**Physical Chemistry for the Biosciences**

Study of selected aspects of physical chemistry as it relates to the biosciences. Includes thermodynamics, reaction rate theory, quantum mechanics, and atomic and molecular structure. Prerequisite(s): CHEM 211/212, PHYS 125/126 & BIOS 301 Group A course. Instructor(s): *MacKenzie, Olson*

BIOS 390 TRAN CREDIT BIOCHEM&CELL BIO (3)**Transfer Credit in Biochemistry and Cell Biology**

For transfer of courses which have no current equivalent in the Rice curriculum, but which can be counted as Group A Biosciences courses in satisfying requirements for majors in Biosciences. Group A course.

BIOS 391 TRAN CREDIT ECOL&EVOLUTION (3)**Transfer Credit in Ecology and Evolutionary Biology**

For transfer of courses which have no current equivalent in the Rice curriculum, but which can be counted as Group B Biosciences courses in satisfying requirements for majors in the Biosciences. Group B course.

BIOS 401 UNDERGRADUATE HONORS RESEARCH (5)**UNDERGRADUATE HONORS RESEARCH**

Open only to undergraduate majors who meet specific requirements and with the permission of the research supervisor and chair. Registration for BIOS 401 implies a commitment to participate in research for at least 2 semesters. Group A course. Instructor(s): *Bennett*

BIOS 402 UNDERGRADUATE HONORS RESEARCH (5)**Undergraduate Honors Research**

See BIOS 401. Concurrent enrollment in BIOS 412. Prerequisite(s): BIOS 201, 202, 301, 302. Group A course. Instructor(s): *Bennett*

BIOS 403 UNDERGRADUATE HONORS RESEARCH (5)**Undergraduate Honors Research in Ecology and Evolutionary Biology**

Open only to undergraduate majors who meet specific requirements and with permission of the research supervisor and chair. Registration for BIOS 403/404 implies a commitment to participate in research for at least 2 semesters. Instructor(s): *Siemann*

BIOS 404 UNDERGRADUATE HONORS RESEARCH (5)**Undergraduate Honors Research in Ecology and Evolutionary Biology**

See BIOS 403. Instructor(s): *Siemann*

BIOS 411 UNDERGRADUATE RESEARCH SEMINAR (1)**Undergraduate Research Seminar**

Discussion of current research in area under investigation. Instructor(s): *Bennett*

BIOS 412 UNDERGRADUATE RESEARCH SEMINAR (1)**Undergraduate Research Seminar**

See BIOS 411. Instructor(s): *Siemann*

BIOS 421 NEUROBIOLOGY (3)**Neurobiology**

Cellular and molecular mechanisms of nervous system function. Emphasis on membrane and synaptic biophysics, sensory and motor systems, neuronal plasticity, and development. Open to juniors and seniors. Prerequisite(s): BIOS 201, 202, 301 Group A course. Instructor(s): *Glantz*

(#) = credit hours per semester

BIOS 422 ENDOCRINOLOGY (3)**Endocrinology**

Study of the molecular and cellular mechanisms of hormone synthesis and of target cell responses. Includes hormonal interactions in mammalian homeostasis. Group A course. Enrollment limited to 50. Prerequisite(s): BIOS 201, 202, 301, 341 Instructor(s): *Beckingham*

BIOS 423 IMMUNOBIOLOGY (3)**Immunobiology**

Cellular and molecular basis of immune function in mammals. Group A course. Prerequisite(s): BIOS 201, 201, 301, 341. Instructor(s): *Novotny*

BIOS 424 MICROBIOLOGY & BIOTECHNOLOGY (3)**Microbiology and Biotechnology**

Structure and functions of microorganisms with emphasis on their environmental, industrial and medical importance. Prerequisite(s): BIOS 201, 202, 301 or permission of instructor. Group A course. Instructor(s): *Bennett*

BIOS 425 PLANT MOLECULAR BIOLOGY (3)**Plant Molecular Biology**

Novel aspects of plant biology and development with emphasis on molecular and genetic mechanisms. Plant responses to the environment and the use of bioengineering and other means to develop new plant products will also be covered. Prerequisite(s): BIOS 201, 202, 301 or permission of the instructor. Group A course. Instructor(s): *Braam*

BIOS 432 ADVANCED EVOLUTIONARY BIOLOGY (3)**Advanced Evolutionary Biology**

Develop a critical understanding of evolutionary theory through lectures and discussion across a wide range of evolutionary topics. With the instructor's help, students will use current papers to stimulate debate on the theories, philosophies and methods of the study of evolution. Prerequisite(s): BIOS 201, 202 and either BIOS 334 or BIOS 321. Group B course Instructor(s): *Staff*

BIOS 433 ADVANCED ECOLOGY (3)**Advanced Ecology**

Students will develop a critical understanding of the discipline of ecology through a combination of lectures and discussion that span a range of topics. With the instructor's help, students will use current papers to stimulate debate on the theories, philosophies and methods of the study of populations, communities, and ecosystems. Prerequisite(s): BIOS 201, 202, and 325. Group B course. Instructor(s): *DeWalt*

BIOS 440 ENZYME MECHANISMS (3)**Enzyme Mechanisms**

Enzymology is a biological extension of organic chemistry. This course will survey examples of enzyme-catalyzed reactions with emphasis on mechanisms. Enzymes that use catalytic cofactors (vitamins) will be covered, as will those that rely on amino acid side chains. Also offered as CHEM 440. Prerequisite(s): CHEM 212 Group A course. Instructor(s): *Parry*

BIOS 443 DEVELOPMENT (3)**Development**

Analysis of the processes and principles of development as seen in a broad spectrum of eukaryotic organisms. Prerequisite(s): BIOS 201, 202, 301, 341 or permission of the instructor. Group A course. Instructor(s): *Lane*

BIOS 445 ADV MOLEC BIOL & GENETICS (3)**Advanced Molecular Biology and Genetics**

Molecular and genetic aspects of the regulation of gene expression as seen in simple prokaryotic systems and the model eukaryotic systems used for studies of development. Prerequisite(s): BIOS 201, 202, 301, 344 Group A course. Course not offered 2004-2005.

BIOS 481 MOLECULAR BIOPHYSICS I (3)**Molecular Biophysics I**

Emphasis on biophysical methods used to study conformation and dynamics of biological macromolecules, in particular proteins. Focus will be on spectroscopic methods, transport processes, chromatography and sedimentation, as well as light scattering and calorimetry. Ligand protein interactions, chemical kinetics and protein folding will also be covered. Prerequisite(s): BIOS 301, 352 or permission of the instructor. Group A course. Instructor(s): *Wittung-Stafsbede*

(F) = Fall; (S) = Spring

BIOS 482 MOLECULAR BIOPHYSICS II (3)**Molecular Biophysics II**

Emphasis on advanced spectroscopy or structure analysis including computational aspects of molecular biophysics. Spectroscopy and structure are emphasized. Advanced treatment of interaction of light with matter, absorption, naturally and magnetically induced optical activity, fluorescence, fast kinetics, EXAFS, EPR, NMR of biomolecules. Prerequisite(s): BIOS 301, 352. BIOS 481 is recommended. Working knowledge of a programming language, such as Fortran, C, Basic, MATLAB, or Pascal, or permission of the instructor. Enrollment limited to 50.

Instructor(s): *Nikonowicz, Tao*

BIOS 525 PLANT MOLECULAR BIOLOGY (3)**Plant Molecular Biology**

Novel aspects of plant biology and development with emphasis on molecular and genetic mechanisms. Plant responses to the environment and the use of bioengineering and other means to develop new plant products will also be covered. Prerequisite(s): BIOS 201, 202, 301 Instructor(s): *Braam*

BIOS 530 LAB MOD NMR SPECTROSCOPY & MOLEC (2)**Lab Module in Nmr Spectroscopy and Molecular Modeling**

The students will learn to set up, acquire, and process one-dimensional and basic two-dimensional NMR experiments. Spectral interpretation (resonance assignment and extraction of structural information) for nucleic acids and proteins using homonuclear and heteronuclear data will be performed. Enrollment limited to 12, with priority to graduate students. Prerequisite(s): BIOS 352 and 481 or permission of the instructor. Instructor(s): *Nikonowicz*

BIOS 532 LAB MOD OPTICAL SPECTROSCOPY (2)**Laboratory Module in Optical Spectroscopy and Kinetics**

Students learn the principles behind fluorescence, circular dichroism, analytical ultracentrifugation, spectroscopy and rapid kinetics by carrying out experiments with genetically engineered proteins and state-of-the-art equipment. Data will be interpreted and manipulated using curve-fitting and graphics software. Enrollment limited to 12. Prerequisite(s): BIOS 352 and 481 or permission of the instructor. Instructor(s): *Cates*

BIOS 533 COMPUTATIONAL BIOLOGY (2)**Computational Biology**

An introduction to the emerging field of bioinformatics. A series of lectures, combined with hands-on exercises. The topics to be discussed include sequence comparison, structure analysis, phylogenetics, database searching, microarrays and proteomics. Prerequisite(s): BIOS 301 and knowledge of computer operation or permission of instructor. Instructor(s): *Cates*

BIOS 535 PRACT X-RAY CRYSTALLOGRAPHY (2)**Practical X-Ray Crystallography**

This is an introduction to macromolecular crystallography with emphasis on crystallization methods, data acquisition, processing and molecular model-building. Approaches to solving structures will be discussed, as well as refinement of molecular models. Must be taken simultaneously with BIOS 481. Enrollment limited to 12. Prerequisite(s): Enrollment in BIOS 481 or permission of the instructor. Instructor(s): *Cates*

BIOS 541 SPEC TOP ECOL&EVOL BIOLOGY (3)**Special Topics in Ecology and Evolutionary Biology**

Instructor(s): *Staff*

BIOS 542 SPEC TOP ECOL&EVOLUTION BIO (3)**Spec. Tops in Ecology and Evolution Biology**

Instructor(s): *Staff*

BIOS 543 SECONDARY METABOLISM (3)**Secondary Metabolism**

A survey of the biosynthetic pathways leading to the major classes of natural products. Topics covered include the use of radioactive and stable isotopes, the synthesis of labeled organic compounds, mechanistic investigations of secondary metabolic enzymes, and the cloning and characterization of secondary metabolic genes. Also offered as CHEM 543. Prerequisite(s): BIOS 440. Course not offered 2004-2005. Instructor(s): *Parry*

BIOS 545 ADV MOD BIOLOGY&GENETICS (3)**Advanced Molecular Biology and Genetics**

Molecular and genetic aspects of the regulation of gene expression as seen in simple prokaryotic systems and the model eukaryotic systems used for studies of development. Prerequisite(s): BIOS 201, 202, 301, 344. Course not offered 2004-2005.

(#) = credit hours per semester

BIOS 551 MOLECULAR BIOPHYSICS (3)**Molecular Biophysics**

Examination, at an intermediate level, of the interaction of light with matter. Includes UV-visible absorption, natural optical activity, fluorescence, EXAFS, NMR of biomolecules, x-ray diffraction and crystallography, neutron scattering, electron microscopy, and theoretical protein dynamics. Enrollment limited to 50. Prerequisite(s): BIOS 301, BIOS 352 or permission of the instructor. Instructor(s): *Wittung-Stafshede*

BIOS 552 MOLECULAR BIOPHYSICS II (3)**Molecular Biophysics II**

Emphasis on advanced spectroscopy or structure analysis including computational aspects of molecular biophysics. Spectroscopy and structure are emphasized. Advanced treatment of interaction of light with matter, absorption, naturally and magnetically induced optical activity, fluorescence, fast kinetics, EXAFS, EPR, NMR of biomolecules. Enrollment limited to 50. Prerequisite(s): BIOS 301, 352. BIOS 481 is recommended. Working knowledge of a programming language, such as Fortran, C, Basic, MATLAB, or Pascal, or permission of the instructor. Instructor(s): *Nikonowicz; Tao*

BIOS 561 TOPICS IN EVOLUTION (2)**Topics in Evolution**

Review and discussion of the literature on current research in evolution. Instructor(s): *Sullender; Meffert*

BIOS 562 TOPICS IN BEHAVIORAL ECOLOGY (2)**Topics in Behavioral Ecology**

Review and discussion of the literature on current research in animal behavior and evolution. Instructor(s): *Meffert, Sullender*

BIOS 563 TOPICS IN ECOLOGY (2)**Topics in Ecology**

Review and discussion of the literature on current research in ecology. Instructor(s): *Harcombe; Siemann*

BIOS 567 RESEARCH METHODS IN FIELD BIOL (2)**Research Methods in Field Biology**

Introduction of first-year graduate students to the field research techniques and practices of individual faculty members. Instructor(s): *Staff*

BIOS 568 TOPICS IN BIOLOGICAL DIVERSITY (2)**Topics in Biological Diversity**

Review and discussion of literature on current research in biological diversity. Limited enrollment to 12. Instructor(s): *Harcombe; Siemann*

BIOS 575 INTRODUCTION TO RESEARCH (1)**Introduction to Research**

Introduction of first-year graduate students to the research programs and laboratories of individual faculty members. Instructor(s): *Staff*

BIOS 576 FOUNDATIONS OF BIOTECHNOLOGY (1)**Foundations of Biotechnology**

Graduate level introduction to a wide range of research methods in biosciences and bioengineering. Individual faculty members from the Biosciences will each present practices and techniques for their areas of expertise. A web-based methods database will be constructed, with student involvement, from the library of lectures. Also offered as BIOE 576. Instructor(s): *Cates*

BIOS 577 FOUNDATIONS OF BIOTECHNOLOGY (1)**Foundations of Biotechnology**

Graduate level introduction to a wide range of research methods in biosciences and bioengineering. Individual faculty members from Bioengineering will each present practices and techniques for their areas of expertise. A web-based methods database will be constructed, with student involvement, from the library of lectures. Also offered as BIOE 577. Instructor(s): *Cates*

BIOS 581 GRAD SEM BIOCHEM&CELL BIO (1)**Grad Seminar in Biochemistry and Cell Biology**

A discussion of selected research topics. Required of all Biochemistry and Cell Biology graduate students. Instructor(s): *Bennett*

BIOS 582 GRAD SEM BIOCHEM&CELL BIO (1)**Graduate Seminar/Biochemistry and Cell Biology**

See BIOS 581. Instructor(s): *Stern*

(F) = Fall; (S) = Spring

BIOS 583 MOLECULAR INTERACTIONS (3)**Molecular Interactions**

Review of literature on current biosciences research. Instructor(s): *Staff*

BIOS 585 GRAD SEM ECOL&EVOL BIOLOGY (1)**Graduate Seminar in Ecology and Evolutionary Biology**

Faculty and student presentations on current research. Required of all Ecology & Evolutionary Biology graduate students. Instructor(s): *Meffert*

BIOS 586 GRAD SEM/ECOL& EVOL BIOLOGY (1)**Graduate Seminar/Ecology and Evolutionary Biology**

Continuation of BIOS 585. Instructor(s): *Meffert*

BIOS 587 SEM 2YR BIOCHEM&CELL BIOLOGY (3)**Graduate Seminar for 2nd Year Graduate Students in**

Biochemistry and Cell Biology Preparation and presentation of research proposals. Instructor(s): *Staff*

BIOS 588 ADVANCED CELL BIOLOGY (3)**Advanced Cell Biology**

Review of literature on current biosciences research. Instructor(s): *Gomer, Wagner*

BIOS 589 COMPUTATIONAL MOLEC BIOPHYSICS (3)**Computational Molecular Biophysics**

This is a course designed for students in computationally-oriented biomedical and bioengineering majors to introduce the principles and methods used for the simulations and modeling of macromolecules of biological interest. Protein conformation and dynamics are emphasized. Empirical energy function and molecular dynamics calculations, as well as other approaches, are described. Specific biological problems are discussed to illustrate the methodology. Instructor(s): *Ma*

BIOS 590 SPECTOPCS BIOCHEM&CELL BIO (1)**Special Topics in Biochemistry and Cell Biology**

Development of specific topic areas at the graduate level. Instructor(s): *Staff*

BIOS 591 GRADUATE TEACHING (3)**Graduate Teaching**

Supervised instruction in teaching Ecology & Evolutionary Biology. Instructor(s): *Sullender*

BIOS 592 SEMINAR IN COMPUTATIONAL BIOL (1)**Seminar in Computational Biology**

A discussion of selected research topics in computational biology. Instructor(s): *Staff*

BIOS 593 SPEC TOP BIOCHEM&CELL BIOLOGY (1)**Special Topics in Biochemistry and Cell Biology**

Discussion of selected research topics in current plant biology literature. Course may be repeated for credit. Instructor(s): *Braam*

BIOS 594 ETHICS BIOMED&BIOENGINEER (1)**The Ethics of Biomedical and Bioengineering Research**

This course will consider ethical issues involving human and animal subjects, recordkeeping, publications, potential conflict of interest, and behavior toward colleagues, research fellows, students, and employees. GRADUATE STUDENTS ONLY. Also offered as BIOE 594. Enrollment limited to 40. Instructor(s): *Staff*

BIOS 611 RESEARCH SEMINAR (3)**Research Seminar**

Discussion of individual laboratory research or current topics in particular areas. Instructor(s): *Staff*

BIOS 612 RESEARCH SEMINAR (3)**Research Seminar**

Continuation of BIOS 611. Instructor(s): *Staff*

BIOS 621 THESIS SEMINAR (1)**Thesis Seminar**

Instructor(s): *Staff*

BIOS 622 THESIS SEMINAR (1)**Thesis Seminar**

Instructor(s): *Staff*

(#) = credit hours per semester

BIOS 800 GRADUATE RESEARCH (HOURS VARIABLE)**Graduate Research**Instructor(s): *Staff***CAAM (COMP. & APPLIED MATHEMATICS)****School of Engineering/Computational and Applied Math****CAAM 210 INTRO TO ENG COMPUTATION (3)****Introduction to Engineering Computation**

Modeling, Simulation, and Visualization via MATLAB. Numerical methods: Newton's method in one and several dimensions. Gaussian elimination and optimization. Application to gene nets, fiber nets, and neural nets.

CAAM 335 MATRIX ANALYSIS (3)**Matrix Analysis**

Equilibria and the solution of linear and linear least squares problems. Dynamical systems and the eigenvalue problem with the Jordan form and Laplace transform via complex integration. Prerequisite(s): MATH 212 and CAAM 210.

CAAM 336 DIFF EQUATIONS SCI&ENG (3)**Differential Equations in Science and Engineering**

Classical solution techniques for ordinary and partial differential equations. Green's functions, fourier series, finite element method for initial and boundary value problems arising in diffusion and wave propagation phenomena. Prerequisite(s): MATH 212 and CAAM 210.

CAAM 353 COMPUTATNAL NUMERICAL ANALYSIS (3)**Computational Numerical Analysis**

An introductory course in numerical analysis with computer applications. Prerequisite(s): MATH 212 and CAAM 210.

CAAM 378 INTRO OPERATIONS RES&OPTI (3)**Introduction to Operations Research and Optimization**

Formulation and solution of mathematical models in management, economics, engineering and science applications in which one seeks to minimize or maximize an objective function subject to constraints, including models in linear, nonlinear and integer programming; basic solution methods for these optimization models; problem-solving using a modeling language and optimization software. Prerequisite(s): MATH 212, and any one of the following: CAAM 335, MATH 211 or MATH 355.

CAAM 401 ANALYSIS I (3)**Analysis I**

Real numbers completeness, sequences and convergence, compactness, continuity, the derivative, the Riemann integral, fundamental theorem of calculus. Vectors spaces, dimension, linear maps, inner products and norms. Prerequisite(s): MATH 211 and 212 or permission of instructor.

CAAM 402 ANALYSIS II (3)**Analysis II**

Continuation of Analysis I. Vector spaces of functions, sequences and series, convergence. Continuity and differentiability of functions of several variables, the derivative as a linear map, the contraction mapping principle, inverse and implicit function theorems, fundamental theorems on differential equations, multivariable integration, Stoke's theorem and relatives. Prerequisite(s): CAAM 401.

CAAM 415 THEORETICAL NEUROSCIENCE (3)**Theoretical Neuroscience**

This course introduces current theoretical methods used to model the properties of nerve cells and the processing of information by neuronal networks. Concrete examples that can be implemented using Matlab will be emphasized. The starting point is the passive cable properties of single neurons and the Hodgkin-Huxley model of action potential generation. Subsequently, models of synaptic transmission and active properties of dendritic trees will be considered. This will be followed by stochastic properties of single neurons and information encoding using mean and instantaneous firing rate in visual neurons. Finally, methods to analyze phase-locking and activity in populations of cells as well as learning algorithms will be considered. Prerequisite(s): MATH 211 or CAAM 335.

CAAM 420 COMPUTATIONAL SCIENCE I (3)**Computational Science I**

Scientific programming using high level languages, including C, Fortran, and C++. Emphasis on use of numerical libraries. Basic techniques of project planning, source management, documentation, program construction, i/o, visualization. Object-oriented design for numerical computation. Prerequisite(s): CAAM 210; CAAM 335 or 353, or permission of instructor.

(F) = Fall; (S) = Spring

CAAM 435 DYNAMICAL SYSTEMS-THEORY & COM (3)**Dynamical Systems – Theory And Computation**

Existence and uniqueness for solutions of ordinary differential equations and difference equations, linear systems, nonlinear systems, stability, periodic solutions, bifurcation theory. Theory and theoretical examples are complemented by computational, model driven examples from biological and physical sciences. Prerequisite(s): CAAM 210, MATH 212, (CAAM 335 or MATH 355), (CAAM 401 or MATH 321).

CAAM 436 PDES OF MATHEMATICAL PHYSICS (3)**PDES of Mathematical Physics**

Derivation and properties of solutions of the partial differential equations of continuum physics. Basic concepts of continuum mechanics, ideal fluids, Navier-Stokes equations, linear elasticity, acoustics, basic principles of thermodynamics, Newtonian heat flow, porous flow, Maxwell's equations, electrical circuits. Prerequisite(s): CAAM 336 or permission of the instructor.

CAAM 452 NUM METHODS FOR PDES (4)**Numerical Methods for Partial Differential Equations**

Structure and properties of the finite element method for static problems in mechanics, electromagnetism, and other field theories. Finite difference methods for initial/boundary value problems of fluid flow, heat transfer, and wave motion. CAAM 436 recommended. Prerequisite(s): CAAM 336 or permission of instructor. Computer programming in Matlab is required.

CAAM 453 NUMERICAL ANALYSIS I (3)**Numerical Analysis I**

Construction and analysis of numerical algorithms for root finding, interpolation and approximation of functions, quadrature, and the solution of differential equations; fundamentals of computer arithmetic; solution of linear systems, least squares problems, and eigenvalue problems via matrix factorizations; the singular value decomposition (SVD) and basic sensitivity analysis. Prerequisite(s): CAAM 335 or permission of the instructor. Computer programming in Matlab is required.

CAAM 454 NUMERICAL ANALYSIS II (3)**Numerical Analysis II**

Iterative methods for linear systems of equations including Krylov subspace methods; gradient method for unconstrained optimization; Newton and Newton-like methods for nonlinear system of equations, unconstrained optimization and nonlinear least squares problems; techniques for improving the global convergence of these algorithms. Theoretical and practical considerations for these algorithms will be discussed. Prerequisite(s): CAM 453 or permission of the instructor. Computer programming in Matlab required.

CAAM 460 OPTIMIZATION THEORY (3)**Optimization Theory**

Derivation and application of necessity conditions and sufficiency conditions for constrained optimization problems. Prerequisite(s): MATH 212 and CAAM 335 or MATH 355.

CAAM 464 NUMERICAL OPTIMIZATION (3)**Numerical Optimization**

Numerical algorithms for constrained optimization problems in engineering and sciences, including simplex and interior-point methods for linear programming, penalty, barrier, augmented Lagrangian and SQP methods for nonlinear programming. Prerequisite(s): CAAM 454 or permission of the instructor. CAAM 460 recommended (may be taken concurrently).

CAAM 469 DYNAMICAL SYSTEMS LAB (1)**Dynamical Systems Lab**

Modeling, simulation and visualization of dynamical systems in Matlab.

CAAM 475 INTEGER & COMB OPTIMIZATION (3)**Integer and Combinatorial Optimization**

Modeling and solving optimization problems with discrete components, graphs and networks; network flow problems; minimum spanning trees; basic polyhedral theory; the knapsack problem; the plant location problem; the set packing problem; computational complexity; branch and bound; cutting planes; Lagrangian relaxation and Bender's decomposition. Prerequisite(s): CAAM 378 or 464 or permission of the instructor. Also offered as ECON 475.

CAAM 490 INDEPENDENT STUDY (HOURS VARIABLE)**Independent Study****CAAM 491 INDEPENDENT STUDY (HOURS VARIABLE)****Independent Study**

(#) = credit hours per semester

CAAM 499 MATH SCIENCES VIGRE SEMINAR (HOURS VARIABLE)**Mathematical Sciences VIGRE Seminar**

This course prepares a student for research in the mathematical sciences on a specific topic. Each section is dedicated to a different topic. Current topics include bioinformatics, biomathematics and computational finance. The topics change each semester. Also offered as STAT 499 and MATH 499.

CAAM 500 GRADUATE RESEARCH SEMINAR (1)**Graduate Research Seminar**

Presentations of ongoing projects by CAAM students and faculty.

CAAM 508 ORDINARY DIFF EQUATIONS (3)**Ordinary Differential Equations**

Review of the fundamental properties of nonlinear systems, includes nonlinear ordinary differential equations (e.g., the existence and uniqueness of solution), Lyapunov stability (e.g., stability of definitions, Lyapunov's direct method, invariance theory, stability of linear systems, Lyapunov's linearization methods, and converse theorems), and input-output stability (e.g., the small gain theorem and passivity theorem), as well as case studies showing applications to nonlinear and adaptive control and robotics. Course not offered every year. Also offered as MECH 508 and ELEC 508. Not offered every year.

CAAM 520 COMPUTATIONAL SCIENCE II (3)**Computational Science II**

Vector shared-memory, and message-passing parallel computer architectures. Numerical linear algebra for these architectures. Memory hierarchy issues, analysis and enhancement of performance, and use of programming tools and environments. Application interfaces including OpenMP and MPI, Parallel numerical algorithms and scientific visualization. Prerequisite(s): CAAM 420.

CAAM 540 APPLIED FUNCTION ANALYSIS (3)**Applied Functional Analysis**

Hilbert spaces, Banach spaces, spectral theory, and weak topologies with applications to signal processing, control, and partial differential equations. Prerequisite(s): CAAM 402 or permission of the instructor.

CAAM 551 NUMERICAL LINEAR ALGEBRA (3)**Numerical Linear Algebra**

Direct methods for large, sparse linear system; regularization of ill-conditioned least squares problems; backward error analysis of basic algorithms for linear equations and least squares, condition estimation. Preconditioned iterative methods for linear systems (CG, GMRES, BiCGstab, QMR); matrix theory including spectral decompositions, Schur form, eigenvalue perturbations, and the geometry of subspaces. Eigenvalue algorithms, Sylvester's equation, the implicitly shifted QR algorithm, computation of the SVD, generalized eigenvalue problems. Introduction to large scale eigen value algorithms and multigrid. Prerequisite(s): CAAM 454 or permission of the instructor. Computer programming in Matlab and one or more of C, F77, C++, F90 is required.

CAAM 552 PARTIAL DIFFERENTIAL EQUATIONS (3)**Partial Differential Equations**

Analysis of boundary and initial value problems. Dirichlet problem for Laplace's equation, variational formulation, Rayleigh-Ritz principle, Sobolev spaces, weak solutions, convergence of the finite element method, interior and boundary regularity, heat equation and the Gaussian kernel, energy estimates, maximum principle, stability, consistency, and convergence of numerical methods, the Fourier transform, Fourier synthesis of Green's functions for the wave equation, von Neumann analysis of finite difference methods for waves. Prerequisite(s): CAAM 402, CAAM 436.

CAAM 563 ENGI APPROACH TO MATH PROGRAM (3)**Engineering Approach to Math Program**

Study of the minimization of functions of variables that are either unconstrained, subject to equality constraints, subject to inequality constraints, or subject to both equality and inequality constraints. Includes analytical and computational methods. Also offered as MECH 563. Instructor(s): *Miele*

CAAM 583 INTRO RANDOM PROCESSES & APS (3)**Introduction to Random Processes and Applications**

Review of basic probability and the formulation, analysis, representation, and application of some random standard random processes. Include sequences of random variables, random vectors and estimation, basic concepts of random processes, random processes in linear systems, expansions of random processes, Wiener filtering, spectral representation of random processes, and white-noise integrals. Prerequisite(s): STAT 381 (STAT 581 recommended). Also offered as ELEC 533 and STAT 583.

(F) = Fall; (S) = Spring

CAAM 590 INDEPENDENT STUDY (HOURS VARIABLE)**Independent Study****CAAM 591 INDEPENDENT STUDY (HOURS VARIABLE)****Independent Study****CAAM 640 OPTIMIZATION W/SIM CONSTRAINTS (3)****Optimization With Simulation Constraints**

Content varies from year to year. Course may be repeated for credit. Prerequisite(s): CAAM 464 or permission of the instructor.

CAAM 641 TOPICS IN INVERSE PROBLEMS (3)**Topics in Inverse Problems**

Theoretical, computational and practical issues for inverse problems in science and engineering. Selected topics will vary depending on instructor and student interests. May be repeated for credit. Prerequisite(s): Permission of instructor.

CAAM 651 TOPICS IN NUMERICAL ALGEBRA (3)**Topics in Numerical Linear Algebra**

Selected topics will vary depending on instructor and student interests. Derivation and analysis of Krylov and subspace iteration methods for large eigenvalue problems (Lanczos, Arnoldi, Jacobi-Davidson algorithms); preconditioning for linear systems and eigenvalue problems (incomplete LU, domain decomposition, multigrid); convergence analysis including potential theory and pseudospectra. Applications: regularization of discrete inverse problems; dimensions reduction for large dynamical control systems; applications involving nonnormal matrices. May be repeated for credit. Prerequisite(s): CAAM 551 or permission of instructor.

CAAM 652 TOPICS IN NUM DIFF EQUAT (3)**Topics in Numerical Differential Equations**

Content varies from year to year.

CAAM 654 TOPICS IN OPTIMIZATION (3)**Topics in Optimization**

Content varies from year to year. Course may be repeated for credit.

CAAM 664 TOPICS NONLINEAR PROGRAMMING (3)**Topics in Nonlinear Programming**

Content varies from year to year.

CAAM 699 MATH SCIENCES VIGRE SEMINAR (HOURS VARIABLE)**Mathematical Sciences VIGRE Seminar**

This course prepares a student for research in the mathematical sciences on a specific topic. Each section is dedicated to a different topic. Current topics include bioinformatics and computational finance. The topics change each semester. Also offered as STAT 699 and MATH 699.

CAAM 800 THESIS (HOURS VARIABLE)**Thesis****CENG (CHEMICAL ENGINEERING)****School of Engineering/Chemical Engineering****CENG 301 CHEMICAL ENG'G FUNDAMENTALS (3)****Chemical Engineering Fundamentals**

Use of basic mathematical concepts, physical laws, stoichiometry, and the thermodynamic properties of matter to obtain material and energy balances for steady and unsteady state systems. Required for sophomores intending to major in chemical engineering.

CENG 303 COMP PROGRAMMING IN CHEM ENGRG (2)**Computer Programming in Chemical Engineering**

An introduction to computer programming for chemical engineering applications using Matlab, FORTRAN and Maple. Course is a co-requisite for students enrolled in CENG 301.

CENG 305 COMPU METHODS CHEMICAL ENGIN (3)**Computational Methods in Chemical Engineering**

Introduction to modern practice and chemical engineering applications of scientific computing: linear algebra (review); computer-aided solution of systems of linear equations: (direct, iterative); evaluation of integrals; systems of nonlinear algebraic equations; systems of ordinary differential equations; one-dimensional boundary value problems; stability and accuracy of computational methods; computational software libraries. Principles illustrated through chemical engineering examples. Prerequisite(s): CENG 301 and CENG 303.

(#) = credit hours per semester

CENG 343 CHEMICAL ENGINEERING LAB I (3)**Chemical Engineering Lab I**

Experiments demonstrating principles presented in core chemical engineering courses.

CENG 390 KINETICS & REACTOR DESIGN (4)**Kinetics and Reactor Design**

Principles and significance of chemical kinetics; procedures for evaluating kinetic parameters from reaction rate data; application of these methods to design and predict the performance of various types of ideal and nonideal chemical reactors.

CENG 401 TRANSPORT PHENOMENA I (3)**Transport Phenomena I**

Fundamental principles of heat, mass, and momentum transport applied to the continuum; analysis of macroscopic physical systems based on the continuum equations; applications in chemical engineering practice.

CENG 402 TRANSPORT PHENOMENA II (3)**Transport Phenomena II**

Continuation of CENG 401.

CENG 403 DESIGN FUNDAMENTALS (4)**Design Fundamentals**

Product and process design fundamentals. Economic analysis. Use of modern simulation tools for chemical engineering design.

CENG 404 PRODUCT AND PROCESS DESIGN (4)**Product and Process Design**

Strategies for optimal product and process design. Industrial economic principles. Special process or product design projects in small groups.

CENG 411 THERMODYNAMICS I (3)**Thermodynamics I**

Development and application of the first and second laws of thermodynamics.

CENG 412 THERMODYNAMICS II (3)**Thermodynamics II**

Advanced treatment of chemical and phase equilibria in multicomponent systems. Includes a detailed study of nonideal solutions.

CENG 420 BIOSYS TRANSP&REACTION PROC (3)**Biosystems Transport and Reaction Processes**

Application of the basic principles of transport and reaction to analyze momentum, heat, and mass transport, and reaction processes in the human body. Includes mathematical modeling to describe physiologic function, to understand pathological conditions, and to design bioartificial organs with emphasis on the quantification of biomedical systems in relation to underlying molecular mechanisms and cellular behavior. Also offered as BIOE 420.

CENG 443 CHEMICAL ENGINEERING LAB II (3)**Chemical Engineering Lab II**

Experiments demonstrating principles presented in core chemical engineering courses. operations, and thermodynamic principles as covered in CENG 401, 402, 411.

CENG 460 BIOCHEMICAL ENGINEERING (3)**Biochemical Engineering**

Design, operation, and analysis of processes in the biochemical industries. Topics include enzyme kinetics, cell growth kinetics, energetics, recombinant DNA technology, microbial, tissue and plant cell cultures, bioreactor design and operation, down stream processing. Also offered as BIOE 460.

CENG 470 PROCESS DYNAMICS & CONTROL (3)**Process Dynamics and Control**

Modeling of dynamic processes. Response of uncontrolled systems. Transfer functions. Feedback controllers; response and stability of controlled systems; frequency response. Design of feedback controllers. Cascade, feed forward and multivariable control systems. Introduction to computer control. Use of simulators to design feedback controllers. Required for B.S. majors in chemical engineering. Prerequisite(s): CENG 301; MATH 211, 212; PHYS 101,102

CENG 500 UNDERGRADUATE RESEARCH (HOURS VARIABLE)**Undergraduate Research**

Independent investigation of a specific topic or problem in modern chemical engineering research under the direction of a selected faculty member. Prerequisite(s): Permission of the department.

(F) = Fall; (S) = Spring

CENG 501 FLUID MECH & TRANSPORT PROCS (3)**Fluid Mechanics and Transport Processes**

Advanced study in fluid mechanics and transport processes including analytical and numerical approximation methods, boundary layer theory, and potential flow theory.

CENG 503 AIR POLLUTION CONTROL (3)**Air Pollution Control**

Examines sources, characterization, and effects of atmospheric pollutants O₃, CO, HC, VOC, NO_x, SO_x, and particulates; regulatory issues and pollution standards; dispersion models and meteorology; and techniques, with emphasis on those employing catalysts, used in pollution standards; dispersion models and meteorology; and techniques, with emphasis on those employing catalysts, used in pollution control.

CENG 530 MOLECULAR ASPECTS OF CHEM ENG (3)**Molecular Aspects of Chemical Engineering**

An integrated engineering course in process analysis and product design that combines molecular chemistry, property-based thermodynamic descriptions, and a focus on intermolecular energetics. The course paradigm is demonstrated through case studies involving molecular, macromolecular, supramolecular, and biomolecular systems.

CENG 540 STATISTICAL MECHANICS (3)**Statistical Mechanics**

A development of the principles of statistical mechanics with applications.

CENG 551 INTRODUCTION TO BIOENGINEERING (1)**Introduction to Bioengineering**

A seminar course introducing current research areas in Bioengineering and Biotechnology. Taught in a tutorial manner to help acquaint students with the research activities of various laboratories at Rice and the Texas Medical Center.

CENG 560 INTERFACIAL PHENOMENA (3)**Interfacial Phenomena**

Interfacial tension, wetting and spreading, contact angle hysteresis, interaction between colloid particles, stability of interfaces, flow and transport near interfaces.

CENG 571 FLOW&TRANSPRT POROUS MEDIA I (3)**Flow and Transport Through Porous Media I**

Study of the geology, chemistry, and physics of multicomponent, multiphase fluids in porous media. Includes hydrostatic and hydrodynamic properties of fluids in soils and rocks and the simulation of fundamental transport processes in one dimension.

CENG 590 CATALYSIS & REACTION ENGRG (3)**Kinetics, Catalysis, and Reaction Engineering**

Review of kinetics and reactor design equations; heterogeneous catalysis; catalyst preparation, characterization, testing; catalytic reaction mechanisms; diffusion and reaction in catalyst pellets; conservation equations; reactor analysis.

CENG 593 POLYMER SCIENCE&ENGINEERINGG (3)**Polymer Science and Engineering**

Basic concepts in macromolecular chemistry and their application in the synthesis and chemical modification of polymers.

CENG 594 PROPERTIES OF POLYMERS (3)**Properties of Polymers**

Molecular organization and physical properties of polymeric materials; elastomeric, semicrystalline, and glassy polymers; processing and technology of polymeric systems. Also offered as MSCI 594.

CENG 600 MASTER CHEM ENGINEER RESEARCH (HOURS VARIABLE)**Master of Chemical Engineering Research**

Independent investigation of a topic or problem in modern chemical engineering research under the direction of a selected faculty member. Prerequisite(s): Permission of department.

CENG 601 FLUID MECHANIC&TRANSPORT (3)**Fluid Mechanics and Transport**

Advanced study in one of several areas of fluid mechanics or transport, including tensor analysis, continuum mechanics, rheology, and mathematical methods of special interest in fluid mechanics.

(#) = credit hours per semester

CENG 602 PHYSICO-CHEMICAL HYDRODYNAMICS (3)**Physico-chemical Hydrodynamics**

Topics in hydrodynamics including areas such as waves on liquid surfaces, convection and diffusion in liquids, motion of drops and bubbles, and electrophoresis.

CENG 603 RHEOLOGY (3)**Rheology**

Calculus and time derivatives of directed quantities. Elastic solid, Newtonian liquid. Shear and extensional flows. Linear Viscoelasticity. Non-linear viscoelasticity: rate- and time-dependent shear and extensional viscosity, normal stresses in shear. Elementary theories of non-linear viscoelastic behavior. Isotropy, objectivity, frame-indifference. Shear and extensional rheometry. Special topics: thermodynamics of microstructured materials; fine-grained theories of polymer dynamics; computational rheology.

CENG 611 ADVANCED TOPICS-THERMODYNAMICS (3)**Advanced Topics—Thermodynamics**

An advanced treatment of the thermodynamics of pure and multicomponent systems. Topics range from classical thermodynamics to a discussion of modern developments, and include an introduction to statistical thermodynamics.

CENG 615 APPL MOLEC SIMULATN & STAT MECH (3)**Appl of Molecular Simulation and Statistical Mechanics**

Introduction to molecular simulation techniques and applications of statistical mechanics-based theory to engineering problems. Projects involve topics of current research interest. Students are expected to know thermodynamics and to have had some introduction to statistical mechanics.

CENG 620 TISSUE ENGINEERING (3)**Tissue Engineering**

This course will focus on cell-cell interactions and the role of the extracellular matrix in the structure and function of normal and pathological tissues. Includes strategies to regenerate metabolic organs and repair structural tissues, as well as cell-based therapies to deliver proteins and other therapeutic drugs, with emphasis on issues related to cell and tissue transplantation such as substrate properties, angiogenesis, growth stimulation, cell differentiation, and immunoprotection. Also offered as BIOE 620.

CENG 630 CHEM ENG NANOSTRUCTURE MATRLS (3)**Chemical Engineering of Nanostructured Materials**

Overview of materials with structural features on the nanometer scale. Discussion of general concepts of synthesis, characterization and applications. Highlight advances found in recent literature.

CENG 661 GRADUATE SEMINAR (1)**Graduate Seminar****CENG 662 GRADUATE SEMINAR (1)****Graduate Seminar****CENG 671 FLOW & TRANSPORT POROUS MEDIA II (3)****Flow and Transport Through Porous Media II**

Calculation of multicomponent-multiphase transport in one to three dimensions using finite difference methods. Includes development of multidimensional models of systems and representation and estimation of geological heterogeneity.

CENG 672 APPLIED MATHEMATICS I (3)**Applied Mathematics I**

Vector Spaces. Linear Transformations. Existence and uniqueness of solutions for linear equations. Numerical solution of linear equations. Gauss elimination, band matrices, finite differences. Determinants. Inner products, norms, orthogonality.

CENG 692 NUMERIC METH DIFF EQUATIONS (3)**Numerical Methods for Differential Equations In Engineering and Biology**

The class focuses on the numerical analysis of various times integration techniques for ordinary differential equations, as well as spatial and temporal discretization methods for hyperbolic and parabolic partial differential equations that describe processes in engineering and biology; homeworks and projects aim at the comparative evaluation of the various schemes discussed in class. Prerequisite(s): Knowledge of a programming language (Fortran preferably) elementary P.D.E.'s, basic concepts of calculus.

CENG 700 MS RESEARCH AND THESIS (HOURS VARIABLE)**MS Research and Thesis****CENG 720 SPECIAL TOPICS CHEM ENGRG I (HOURS VARIABLE)****Special Topics in Chemical Engineering I**

A course which covers various special topics in chemical engineering. Offered at irregular intervals on demand. Enrollment requires approval of the instructor.

(F) = Fall; (S) = Spring

CENG 760 BAYLOR/RICE MD/PHD PROGRAM (HOURS VARIABLE)**Baylor/Rice MD/Phd Program**

Departmental permission required.

CENG 800 GRADUATE RESEARCH (HOURS VARIABLE)**Graduate Research****CENG 801 SPECIAL TOPICS CHEM ENGRG II (1)****Special Topics in Chemical Engineering II**

Summer internship in an area related to thesis research or professional broadening. Permission of thesis advisor and department chair required.

CEVE (CIVIL AND ENVIRONMENTAL ENG)**School of Engineering / Civil and Environmental Engineer****CEVE 101 FUNDAMENTAL OF CIVIL & ENVIR E (3)****Fundamentals of Civil and Environmental Engineering**

This introduction will cover the essential topics and quantitative techniques for students interested in the major (either B.S. or B.A.). Fluid flow, solid mechanics, and mass balance techniques will be presented followed by applications to sustainable urban infrastructure, water quality and water treatment, bridge construction, transportation, air and water quality, and urban planning and management principles.

CEVE 201 INTRO-ENVIRONMENTAL SYSTEMS (3)**Intro-Environmental Systems**

The chemical, physical, and biological components of the natural environment as resources and their utilization and interaction in environmental control engineering and technology. Lecture and Laboratory is required. Also offered as HEAL 201.

CEVE 203 PRINCIPLES OF ENVI ENGINEERING (3)**Principles of Environmental Engineering**

This course provide basic information on principles of water quality engineering, air pollution control and solid and hazardous waste management. Co-requisite(s): CEVE 204. Instructor(s): *Alvarez*

CEVE 204 PRINCIPLES OF ENVI. ENG. LAB (1)**Principles of Environmental Engineering Lab**

Laboratory for CEVE 203. Instructor(s): *Alvarez*

CEVE 211 ENGINEERING MECHANICS (3)**Engineering Mechanics**

Also offered as MECH 211.

CEVE 304 STRUCTURAL ANALYSIS I (3)**Structural Analysis I**

Analysis of statically determinate structures; stability and determinacy; influence lines and moving loads. Calculation of deflections. Introduction to analysis of indeterminate structures.

CEVE 308 GLOB ENVIRON LAW & SUSTAINABLE (3)**Global Environmental Law and Sustainable Development**

Examination of emerging trends toward sustainable development and global environmental protection. Includes international treaties on management of the oceans, global warming, ozone depletion, biodiversity and development pattern; impact of treaties such as NAFTA and GATT. Offered every other spring semester.

CEVE 311 MECHANICS OF SOLIDS (3)**Mechanics of Solids and Structures**

Analysis of stress and deformation of solids with applications to bars, beams, and columns. Study of engineering properties of materials. Applying equilibrium, compatibility, and force-deformation relationships to structural elements. Introduction to flexibility and stiffness method structural analysis. Prerequisite(s): CEVE 211 and MECH 211.

CEVE 312 STRENGTH OF MATERIALS LAB (1)**Strength of Materials Lab**

Instruction in standard tension, compression, and torsion tests of ferrous and nonferrous metals. Includes experimental techniques and the behavior of structural elements.

(#) = credit hours per semester

CEVE 315 SUSTAINABLE DEVELOPMENT (HOURS VARIABLE)**Sustainable Development in Developing Countries**

This course focuses on the appropriate use of sustainable technology in developing countries. Topics of focus include water supply and treatment, energy and electrical systems, building design and construction and sustainable agriculture.

CEVE 322 ENGINEERING ECONOMICS (3)**Engineering Economics for Engineering**

Introduction to the evaluation of alternative investment opportunities with emphasis on engineering projects and capital infrastructure. Time value of money concepts are developed in the context of detailed project evaluation and presentations. In addition, concepts and applications of risk analysis and investment under uncertainty are developed. Requires oral and written presentations by students. Also offered as ENGI 303.

CEVE 400 MECHANICS OF SOLIDS II (3)**Mechanics of Solids II**

Analysis of stress and strain in two and three dimensions. Stress-strain relations for elastic, elastic/plastic, and viscoelastic materials. Material failure criteria. Analysis of bending and torsion of cylinders, plane problems, large deflection of beams, curved beams, beams of elastic foundations, and plates. Solutions by analytical, numerical, energy methods, including an introduction to the finite element method.

CEVE 401 INTRO ENVIRONMENTAL CHEMISTRY (4)**Introduction to Environmental Chemistry**

Principles and significance of measurements used to assess environmental quality. Hands-on measurements of both classical titrations, and modern instrumental methods of measuring both bulk and trace level pollutant concentrations. Lecture and lab.

CEVE 405 STEEL DESIGN (3)**Steel Design**

Design of steel members, connections, and assemblies. Behavior of a member as related to design.

CEVE 406 INTRO TO ENVIRONMENTAL LAW (3)**Introduction to Environmental Law**

Legal techniques by societies to plan and regulate the use of environmental resources. Offered every other spring semester.

CEVE 407 REINFORCED CONCRETE DESIGN (3)**Reinforced Concrete Design**

Instruction in tests of materials and reinforced concrete members. Co-requisite: CEVE 408.

CEVE 408 CONCRETE LABORATORY (1)**Concrete Laboratory**

Instruction in tests of materials and reinforced concrete members. Co-requisite: CEVE 407.

CEVE 411 AIR RESOURCE MANAGEMENT (3)**Air Resource Management**

Introductory principles necessary for understanding air quality and the sources and control of air pollution.

CEVE 412 HYDROLOGY & WATERSHED ANALYSIS (3)**Hydrology and Watershed Analysis**

Fundamentals of the hydrologic cycle, hydrograph techniques, flood routing, and open channel flow. Topics in ground water and well mechanics are covered. Includes computational hydrology, hydrologic design and local watershed applications.

CEVE 417 FINITE ELEMENT ANALYSIS (3)**Finite Element Analysis**

An introduction to finite element analysis by Galerkin's method and the method of least squares as applied to both ordinary and partial differential equations common in engineering applications. Element interpolations, numerical integration, computational considerations for efficient solution and post-processing methods. Application of educational and commercial codes to heat transfer and stress analysis. Also offered as MECH 417. Prerequisite(s): MATH 212, CAAM 210 or 211.

CEVE 427 MATRIX METHODS IN STRUCTURAL (3)**Matrix Methods in Structural Mechanics**

Introduction to matrix structural analysis and finite element method, applied to trusses, beams, frame and two dimensional elasticity problems. Use of computer programs for structural analysis. Prerequisite(s): CEVE 311. Instructor(s): *Nagarajaiah*

(F) = Fall; (S) = Spring

CEVE 434 CHEMICAL TRANSPORT (3)**Chemical Transport and Fate in the Environment**

Principles of mass balance, chemical partitioning, transport and transformation in surface waters, ground waters, and the atmosphere.

CEVE 443 ATMOSPHERIC SCIENCE (3)**Atmospheric Science**

This course emphasizes the science of the atmosphere. Subjects studied include: radiation; climate dynamics; energy balance models; structure and stability; water cloud, and precipitation physics; atmosphere dynamics; storms and special systems; and atmospheric electricity.

CEVE 452 URBAN TRANSPORTATION SYSTEMS (3)**Urban Transportation Systems**

Survey of operation characteristics of transport modes the elements of transportation planning, and the design of stationary elements.

CEVE 454 FINITE ELEMENT METHODS (3)**Finite Element Methods in Fluid Mechanics**

Fundamental concept of finite element methods in fluid mechanics, including spatial discretization and numerical stabilization techniques designed for fluid mechanics problems. Strategies for solution of complex, real-world problems. Topics in large-scale computing, parallel processing, and visualization. Also offered as BIOE 454.

CEVE 470 BASIC SOIL MECHANICS (3)**Basic Soil Mechanics**

Index and classification properties of soil including soil classification systems; clay minerals and soil structure; compaction theory; engineering behavior and properties of soils including permeability, compressibility and strength; design considerations. Required for B.S.C.E. foundations. Required for B.S.C.E.

CEVE 480 SENIOR DESIGN (4)**Senior Design**

Synthesis and application of engineering knowledge of the design of projects.

CEVE 490 SPECIAL STUDY AND RESEARCH (HOURS VARIABLE)**Special Study and Research**

Open to environmental science or engineering majors with permission of instructor. Written report required.

CEVE 499 SPECIAL PROBLEMS (HOURS VARIABLE)**Special Problems**

Study of selected topics including individual investigations special lectures, and seminars. Offered upon mutual agreement of faculty and student.

CEVE 501 ADV MECHANICS OF SOLIDS II (3)**Advanced Mechanics of Solids II**

Analysis of the nonlinear behavior of elastic and inelastic solids with engineering applications. Not offered every year.

CEVE 508 GLOBAL ENVIRON LAW & SUST DEV (3)**Global Environ Law and Sustainable Dev**

Graduate version of CEVE 308 (one additional paper required). Offered every other spring semester.

CEVE 511 ATMOSPHERIC CHEMISTRY/PHYSICS (3)**Atmospheric Chemistry and Physics**

Study of the principal chemical and physical processes affecting gases and particles in the atmosphere. Overview of the atmospheric transport, transformation and dispersion of air pollutants on the urban, regional and global scale; atmospheric photochemistry and tropospheric ozone formation; influence of meteorology on air pollution; stratospheric chemistry and global climate change; interactions between gases and particles; characterization; chemical composition and size distributions of atmospheric particles.

CEVE 512 HYDROLOGIC DESIGN LAB (3)**Hydrologic Design Lab**

Use of Geographic Information Systems (GIS) and design of GIS-developed hydrologic models commonly applied in the water resources field. The course will have three main areas of emphasis including: principles and operation of the ArcView/ArcGIS programs, design and implementation of standard hydrologic and hydraulic models, and the linkage of these models to engineering analysis of current water resources problems including flooding, water quality and water supply. Enrollment limited to 16.

(#) = credit hours per semester

CEVE 513 THEORY OF ELASTICITY (3)**Theory of Elasticity**

Advanced topics in the linear and nonlinear theory of elasticity. Not offered every year. Also offered as MECH 513.

CEVE 516 PLATES AND SHELLS (3)**Plates and Shells**

Introduction to theories of plates and cylindrical shells with an applications to practical problems. Not offered every year.

CEVE 518 GROUNDWATER HYDROLOGY/CONTAMIN (3)**Groundwater Hydrology and Contamination**

Groundwater hydrology, well mechanics, hydraulics. Contaminant issues in aquifer systems, numerical models, of large aquifers. Topics in water resources engineering and aquifer management.

CEVE 520 REMEDIATION TECHNOLOGIES (3)**Remediation Technologies**

Study of current remediation technologies for soil, water, and air. Includes selection criteria, costs, operating strategies and engineering design.

CEVE 521 STRUCTURAL DYNAMICS I (3)**Structural Dynamics I**

Dynamics of force-excited discrete linear systems with applications to design.

CEVE 522 STRUCTURAL DYNAMICS II (3)**Structural Dynamics II**

Dynamics of force-excited continuous linear systems and ground-excited linear and yielding structures. Fundamentals of earthquake engineering.

CEVE 525 STRUCTURAL DYNAMICS III (3)**Structural Dynamics III**

Study of special topics in structural dynamics. includes problems of wave propagation, the response of structures to waves, the dynamics of foundations, and soil-structure and fluid-structure interaction.

CEVE 526 STRUCTURAL STABILITY (3)**Structural Stability**

General analysis of stress and strain, linear elastic, thermo-elastic stress-strain relations. Approximate solutions by energy methods and finite element method.

CEVE 527 COMPUTATIONAL METHODS (3)**Computational Methods in Structural Mechanics**

Introduction to differential and integral formulations, variational principles, weighted residuals, and principle of virtual work. Simple boundary, initial, and eigenvalue problems. Finite element, boundary element, and finite difference methods for structural mechanics. Study of nonlinearities. Computational methods for geometric and material nonlinear analysis. Applications to static and dynamic problems. Programming and use of computer software. Also offered as MECH 527.

CEVE 530 CONCRETE BUILDING DESIGN (3)**Concrete Building Design**

Design of reinforced concrete building structures and floor slab systems. Case histories will be discussed.

CEVE 531 BEHAVIOR/REINFORCED CONCRETE (3)**Behavior of Reinforced Concrete Members**

Study of moment-curvature relationship for beams and columns biaxially loaded columns, slenderness effects, interaction diagrams, shear and torsion in members, shear wall-frame interaction, and behavior under large load reversals. Includes extensive use of microcomputers.

CEVE 532 PRESTRESSED CONCRETE (3)**Prestressed Concrete**

Study of prestressing techniques, prestress losses, deflections, shear and torsion, and the analysis and design of members using microcomputers. Includes composite members, continuous beams, and prestressed slabs. Prerequisite(s): CEVE 407

CEVE 533 PHYSICAL-CHEMICAL PROC IN ENVI (3)**Physical-Chemical Processes in Environ**

Introduction to colloid and surface chemistry, precipitation, settling, packed bed filtration, membrane separations and other operations used in environmental pollution control and portable water treatment.

(F) = Fall; (S) = Spring

CEVE 534 TRANSPORT PHENOMENA (3)**Transport Phenomena and Environmental Modeling**

Principles of fluid flow, mass transport and transformation processes in natural and engineered systems. Applications of reactor engineering, chemical and biological reaction kinetics to environmental systems modeling including streams, lakes, estuaries and the atmosphere. Previous course work in fluid mechanics and calculus through differential equations is strongly suggested.

CEVE 536 ENVIRONMENTAL BIOTECHNOLOGY (3)**Environmental Biotechnology**

Theory and application of biochemical processes in environmental engineering.

CEVE 540 STEEL BUILDING DESIGN (3)**Steel Building Design**

Exploration of practical design from conceptual stage to final analysis. Includes design parameters and serviceability limitations. Prerequisite(s): CEVE 305, 306, and 407

CEVE 550 ENVIRONMENTAL ORGANIC CHEM (3)**Environmental Organic Chemistry**

A course covering parameter estimation methods, thermodynamics, and kinetic needed to predict the fate, transports, and reactivity of organic compounds in air, water, and soils. Topics: volatilization, solubility, sorption, partitioning, diffusion, aquatic reactivity, photochemistry, and transport modeling.

CEVE 554 FINITE ELEMENT METHODS (3)**Finite Element Methods in Fluid Mechanics**

Graduate version of CEVE 454. Additional work required. Also offered as BIOE 554.

CEVE 570 FOUNDATION ENGINEERING (3)**Foundation Engineering**

Subsurface exploration methods and techniques; lateral earth pressures and design of retaining walls; bearing capacity and shallow foundation design; settlement considerations; design of deep foundations; temporary excavations and dewatering. Prerequisite(s): CEVE 470.

CEVE 576 STRUCTURAL DYNAMICS & CONTROL (3)**Structural Dynamics and Control**

Elements of linear systems and control theory, transform methods, state space methods, feedback control, and Lyapunov's method. Analytical modeling of structures, control algorithms, and response to dynamic loading. Base isolation, smart materials and devices, sensors, structural control applications, monitoring, and case studies. Also offered as MECH 610 Prerequisite(s): CEVE 521 or MECH 502, CEVE 527

CEVE 590 MEE & MES SPECIAL STUDY (3)**MEE and MES Special Study and Research**

Independent investigation of a specific topic or problem in environmental engineering under the direction of a selected faculty member. Preparation of a formal report and oral presentation of results are required.

CEVE 601 SEMINAR (HOURS VARIABLE)**Seminar**

Continuing seminar on environmental research.

CEVE 602 SEMINAR (3)**Seminar**

See CEVE 601.

CEVE 610 STRUC DYNAMIC SYSTEMS/CONTROL (3)**Structural Dynamic Systems and Control**

Elements of linear systems and control theory, transform methods, state space methods, feedback control, and Lyapunov's method. Analytical modeling of structures, control algorithms, and response to dynamic loading. Base isolation, smart materials and devices, sensors, structural control applications, monitoring, and case studies. Also offered as MECH 610. Prerequisite(s): CEVE 521 or MECH 502, CEVE 527.

CEVE 630 MEMBRANE PROC & SPECIAL TOPICS (3)**Membrane Processes and Special Topics in Colloid and Nanochemistry**

Fundamentals of membrane processes, theory and methods for characterizing aquasols, particle transport in porous media and simple flows, particle aggregation, aggregate and deposit morphology, and other special topics.

CEVE 631 ENVIRONMENTAL SYST ANALYSIS (3)**Environmental Systems Analysis**

Formulation of optimization models for environmental decision weekly. (Offered in alternate years.)

(#) = credit hours per semester

CEVE 635 ADV TOPICS: WATER CHEMISTRY (3)**Advanced Topics: Water Chemistry**

Formal lecture and assigned reading in topics such as redox kinetics and thermodynamics, absorption and desorption, and the associated mathematics. An advanced topics course.

CEVE 636 ADV TOPICS IN WATER CHEMISTRY (3)**Advanced Topics in Water Chemistry**

See CEVE 635.

CEVE 640 ADV TOPICS/ENVIRONMENTAL ENG (3)**Advanced Topics in Environmental Engineering Sciences**

Special topics in Graduate Study.

CEVE 641 ADV TOPICS/ENVIRONMENTAL ENG (3)**Advanced Topics in Environmental Engineering**

Advanced topics in Graduate Study.

CEVE 651 MS RESEARCH AND THESIS (3)**MS Research and Thesis****CEVE 652 MS RESEARCH AND THESIS (HOURS VARIABLE)****MS Research and Thesis****CEVE 654 ADV COMPUTATIONAL MECHANICS (3)****Advanced Computational Mechanics**

Advanced topics in computational mechanics with emphasis on finite element methods and fluid mechanics. Stabilized formulations. Fluid-particle and fluid-structure interactions and free-surface and two-fluid flows. Interface-tracking and interface-capturing techniques, space-time formulations, and mesh update methods. Enhanced discretization and solution techniques. Iterative solution methods, matrix-free computations, and advanced preconditioning techniques. Also offered as BIOE 654 and MECH 654 Prerequisite(s): MECH 554 or permission of Instructor. Instructor(s): *Tezduyar*

CEVE 678 ADVANCED STOCHASTIC MECHANICS (3)**Advanced Stochastic Mechanics**

Nonlinear random vibrations, Statistical Linearization, ARMA filters modeling, Monte Carlo Simulation, Wiener-Volterra series, time-variant structural reliability, and Stochastic Finite Elements are presented from a perspective of usefulness to aerospace, civil, marine, and mechanical applications. Also offered as MECH 678.

CEVE 679 APPLIED MONTE CARLO ANALYSIS (3)**Applied Monte Carlo Analysis**

Probability density and power spectrum based simulation concepts and procedures are discussed. Scalar and vectorial simulation are addressed. Spectral decomposition and digital filter algorithms are presented. Applications from aerospace, earthquake, marine, and wind engineering, and from other applied science disciplines are included. Also offered as MECH 679.

CEVE 699 SPECIAL PROBLEMS (3)**Special Problems**

Study of selected topics including individual investigations under the direction of a member of the civil engineering faculty. Offered upon mutual agreement of faculty and student.

CEVE 800 PHD RESEARCH AND THESIS (HOURS VARIABLE)**PhD Research and Thesis****CEVE 801 RESEARCH AND THESIS (HOURS VARIABLE)****CHEM (CHEMISTRY)****School of Natural Sciences/Chemistry****CHEM 121 GENERAL CHEMISTRY WITH LAB (4)****General Chemistry With Lab**

***Hour exams 8 AM TTH *** Introduction to chemical phenomena emphasizing problems and methods in chemistry. Either CHEM 121 or CHEM 151 may be taken as a prerequisite for advanced study in chemistry, but only one of these may be taken for credit. Includes a laboratory that meets once per week for 2.5 hours. More information may be found on the website at <http://www.owl.net.rice.edu/~chem121>.

(F) = Fall; (S) = Spring

CHEM 122 GENERAL CHEMISTRY WITH LAB (4)**General Chemistry With Lab**

HOURLY EXAMS 8 AM TTH *** See CHEM 121. Either CHEM 122 or 152 may be taken as Prerequisite(s) for advanced study in chemistry, but only one of these two may be taken for credit. Includes a laboratory that meets once per week for 2.5 hours.

CHEM 151 HONORS CHEMISTRY WITH LAB (4)**Honors Chemistry With Lab**

An accelerated introduction to chemical phenomena emphasizing principles and theories in chemistry. Recommended strongly for students who plan to major in chemistry or have a strong high school background. Includes a laboratory that meets once per week for 2.5 hours.

CHEM 152 HONORS CHEMISTRY WITH LAB (4)**Honors Chemistry With Lab**

See CHEM 151. Includes a laboratory that meets once per week for 2.5 hours.

CHEM 157 LABORATORY SKILLS REVIEW (0)**Laboratory Skills Review**

A laboratory refresher course for students who received AP credit for CHEM 121/122. Prerequisite(s): permission of instructor required.

CHEM 158 LABORATORY SKILLS REVIEW (1)**Laboratory Skills Review**

Continuation of CHEM 157

CHEM 211 ORGANIC CHEMISTRY (3)**Organic Chemistry**

Organic chemistry of aliphatic and aromatic compounds with emphasis on structure, bonding, and reaction mechanisms.

CHEM 212 ORGANIC CHEMISTRY (3)**Organic Chemistry**

Continuation of CHEM 211 with a greater emphasis on the chemistry of various functional groups.

CHEM 215 ORGANIC CHEMISTRY LAB (2)**Organic Chemistry Lab**

Synthesis, purification, and characterization of organic compounds. Experiments related to topics covered in CHEM 211, 212. Includes identification of unknown organic compounds. (One hour lecture precedes each lab). One lab per week.

CHEM 217 ORGANIC LAB CHEM ENGINEERS (1)**Organic Laboratory for Chemical Engineers**

Organic laboratory designed for chemical engineering majors. Emphasis placed on the synthesis and the characterization of organic compounds. This laboratory does not satisfy requirements for science majors or premedical students.

CHEM 235 NANOTECH: CONTENT AND CONTEXT (3)**Nanotechnology: Content and Context**

Nanotechnology is science and engineering resulting from the manipulation of matter's most basic building blocks: atoms and molecules. This course is designed for humanities and science students who want to explore the content of nanotechnology. (e.g., the methods of visualization, experimentation, and manufacture, and technical feasibility) with the social context of nanotechnology (issues of ethics regulation, risk assessment, history funding, intellectual property, controversy and conflict). Preference will be given to freshmen and sophomore students. Register for CHEM 235 to receive Group 3 distribution credit; register for ANTH 235 to receive Group 2 distribution credit. Also offered as ANTH 235. Enrollment limited to 40. Instructor(s): *Kulinowski, Kely*

CHEM 251 HONORS ORGANIC CHEMISTRY I (3)**Honors Organic Chemistry I**

Chemistry 251 HONORS is a 3-credit course with a limited enrollment of 50 students. This course is specifically designed for chemistry majors plus any other students interested in a deeper study of the subject. Subjects will include current topics in organic chemistry along with in-depth descriptions of mechanisms and their implications, discussions of industrial and pharmaceutical chemistry and ethical questions that often arise with chemical use. Advanced problem solving sessions will be included. Pre-requisite(s): CHEM 121 and 122 Instructor: James Tour

(#) = credit hours per semester

CHEM 252 HONORS ORGANIC CHEMISTRY II (3)**Honors Organic Chemistry II**

Chemistry 252 HONORS is a continuation of CHEM 251 with a limited enrollment of 50 students, specifically designed for chemistry majors plus any other students interested in a deeper study of the subject. See CHEM 251 for description of topics. Advance problem sessions will be included. Pre-requisite(s): CHEM 251 Instructor: *Ed Billups*

CHEM 311 PHYSICAL CHEMISTRY (3)**Physical Chemistry**

An introduction to the fundamental principles of physical chemistry, including quantum chemistry, chemical bonding and molecular spectroscopy, statistical thermodynamics, and kinetic theory of gases.

CHEM 312 PHYSICAL CHEMISTRY (3)**Physical Chemistry**

An introduction to the principles of thermodynamics, statistical thermodynamics, kinetic theory of gases and statistical mechanics.

CHEM 351 INTR MOD EXPERIMENTAL CHEM I (1)**Introductory Module in Experimental Chemistry I**

Experiments illustrating techniques in synthetic inorganic chemistry and instrumental methods of analysis. Required for chemistry majors. Taught in the first half of the semester. Freshman may take the course with permission from instructor.

CHEM 352 INTR MOD EXPERIMENTAL CHEM II (1)**Introductory Module in Experimental Chemistry II**

Experiments illustrating techniques in synthetic organic chemistry and instrumental methods of analysis. Required for chemistry majors. Taught in the second half of the semester.

CHEM 353 INTRO MOD ANALYTICAL METHODS (1)**Introductory Module in Analytical Methods**

Experiments illustrating techniques in analytical chemistry, data analysis, data precision and accuracy. Quantitative measurements will be stressed including volumetric techniques.

CHEM 360 INORGANIC CHEMISTRY (3)**Inorganic Chemistry**

Survey of the periodic table; atomic and molecular structure; bonding in covalent, ionic, and electron deficient systems; thermochemical principles and experimental techniques for analysis, structure determination, and synthesis.

CHEM 373 ADV MODULE IN FULLERENE CHEM (1)**Advanced Module in Fullerene Chemistry**

A mixture of fullerenes is extracted, separated, and purified. Spectroscopic, kinetic, and electrochemical properties of C₆₀ and C₇₀ are then measured and interpreted. Offered first half of the semester.

CHEM 374 ADV MODULE IN SYNTHETIC CHEM (1)**Advanced Module in Synthetic Chemistry**

Advanced techniques in organic synthesis are presented. Offered the second half of the semester.

CHEM 375 ADV MOD NANO CHEMISTRY (1)**Advanced Module in Nanochemistry**

Students explore synthesis and structure of nanoparticles and their physical characterization.

CHEM 381 ADV MOD PHYSICAL CHEMISTRY I (1)**Advanced Module in Physical Chemistry I**

Study of experimental physical chemistry. Offered in first half of semester. Some knowledge of Matlab required.

CHEM 382 ADV MOD PHYSICAL CHEMISTRY (1)**Advanced Module in Physical Chemistry II**

Study of experimental physical chemistry. Offered in first half of semester. Some knowledge of Matlab required. The labs are offered M, T, W, or TH from 1-7 pm every other week.

CHEM 383 ADV MOD INSTRUMENTAL ANALYSIS (1)**Advanced Module in Instrumental Analysis**

Principles and application of modern instrumental methods to inorganic and physical chemistry. Offered in the first half of the semester.

CHEM 384 ADV MOD INSTRUMENTAL ANALYSIS (1)**Advanced Module in Instrumental Analysis**

Principles and application of modern instrumental methods to inorganic and physical chemistry. Offered in the second half of the semester.

(F) = Fall; (S) = Spring

CHEM 385 ADV MOD POLYMER CHEMISTRY (1)**Advanced Module in Polymer Chemistry**

Students explore the synthesis and physical properties of conducting polymers.

CHEM 391 ADVANCED MODULE IN CATALYSIS (1)**Advanced Module in Catalysis**

Preparation and study of a homogeneous catalytic system.

CHEM 395 ADV. MODULE IN GREEN CHEMISTRY (1)**Advanced Module in Green Chemistry**

Experimental laboratory designed to access the health and environmental impact of chemical processes and the strategies to improve them. Taught second half of the semester.

CHEM 399 ADV. LAB MODULE IN LABORATORY (1)**Advanced Laboratory Module In Laboratory**

The student works on a laboratory research project to develop a new advanced laboratory course under the supervision of a chemistry faculty member. Enrollment by approval of the department chair only. Prerequisite(s): CHEM 351 and 352.

CHEM 401 ADV ORGANIC CHEMISTRY (3)**Advanced Organic Chemistry**

The synthesis of complex organic compounds are described using the basic outline of retrosynthetic analysis. An overview of numerous classical organic and organometallic methods is utilized.

CHEM 411 SPECTRAL METH. IN ORGANIC CHEM (3)**Spectral Meth. in Organic Chem**

Elucidation of organic structures by physical techniques. Interpretation of infrared, ultraviolet, nuclear magnetic resonance, and mass spectra.

CHEM 413 NUCLEAR MAGN RESONANCE IN CHEM (3)**Nuclear Magnetic Resonance in Chemistry**

This course is designed to bring the practicing scientist to a sufficient level of competence in nuclear magnetic resonance (NMR) to understand multi-dimensional NMR techniques and the current literature. The course covers the mathematical and physical basis of NMR as well as the experimental aspects, which will lead to the selection of experiments appropriate to the class participants' research projects. CHEM 413 assumes a fundamental knowledge of ^{13}C and ^1H NMR.

CHEM 414 MATH METHODS FOR HIGH RESOLUTION (3)**Mathematical Methods For High Resolution NMR Spectroscopy**

Rigorous development of the density matrix methodology for analysis of high resolution NMR Spectroscopy. Includes two and three dimensional NMR techniques for liquid phase samples. Product operator formalism gradient enhanced spectroscopy and methods for rapid analysis of NMR spectra will be presented.

CHEM 415 CHEMICAL KINETICS & DYNAMICS (3)**Chemical Kinetics and Dynamics**

Description and analysis of the rates of unimolecular, bimolecular and composite chemical reactions in gas and solution phases. Both macroscopic kinetics and microscopic reaction dynamics are covered.

CHEM 430 QUANTUM CHEMISTRY (3)**Quantum Chemistry**

Quantum mechanical principles, atomic structure and chemical bonding.

CHEM 435 METH COMPUTATIONL QUANTUM CHEM (1)**Methods of Computational Quantum Chemistry**

Methods of quantum chemistry will be examined with projects to explore the application of these techniques in solving questions about chemical structure, bonding and reactivity. Counts as an advanced laboratory module. Offered the second half of the semester. Enrollment limited to 6.

CHEM 440 ENZYME MECHANISMS (3)**Enzyme Mechanisms**

A survey of organic reactions catalyzed by enzymes, with an emphasis on arrow-pushing mechanisms. Both enzymes that use cofactors and those that do not will be covered. Also offered as BIOS 440.

CHEM 445 PHYSICAL ORGANIC CHEM (3)**Physical Organic Chem**

Organic reaction mechanisms, substituent and medium effects, linear free energy relations and acidity functions.

(#) = credit hours per semester

CHEM 491 RESEARCH FOR UNDERGRADUATES (HOURS VARIABLE)**Research For Undergraduates**

Open only to chemistry majors unless approved by the department chair. Written report required.

CHEM 494 UNDERGRAD LITERATURE RESEARCH (3)**Undergraduate Literature Research**

Students conduct literature research under the direction of a chemistry faculty member. The research project will culminate in a substantial written work describing the results of the project. Approval of the department chair required.

CHEM 495 TRANSITION METAL CHEMISTRY (3)**Transition Metal Chemistry**

Structure, bonding and reactivity of coordination and organometallic compounds; ligand field theory; electronic spectroscopy; magnetism; reaction mechanisms; catalysis.

CHEM 515 CHEMICAL KINETICS & DYNAMICS (3)**Chemical Kinetics and Dynamics**

Description and analysis of the rates of unimolecular, bimolecular, and composite chemical reactions in gas and solution phases. Both macroscopic kinetics and microscopic reaction dynamics are covered.

CHEM 520 CLASSICAL & STATISTICAL THERMODYNAMICS (3)**Classical and Statistical Thermodynamics**

A review of the principles of classical thermodynamics and an introduction to the theories and methods of statistical thermodynamics with applications to problems in chemistry.

CHEM 530 MOLECULAR QUANTUM MECHANICS I (3)**Molecular Quantum Mechanics I**

Quantum mechanical principles, atomic structure, and chemical bonding.

CHEM 531 QUANTUM MECHANICS II (3)**Quantum Mechanics II**

A development of the elements and techniques of quantum mechanics with applications to atomic and molecular systems.

CHEM 533 NANOSTRUCTURE & NANOTECHNOLOGY (3)**Nanostructure and Nanotechnology I**

An introduction to the basic principles of nanoscience and Nanotechnology. Size dependent physical properties of nanoscopic solids will be described using solid state physics and molecular orbital theory as a foundation. Wet chemical techniques that produce nanoscale materials (e.g. carbon nanotubes, semiconductor and metallic nanocrystals, dendrimers...) will be introduced in the second half of the semester.

CHEM 543 SECONDARY METABOLISM (3)**Secondary Metabolism**

A survey of the biosynthetic pathways leading to the major classes of natural products. Topics covered include the use of radioactive and stable isotopes, the synthesis of labeled organic compounds, mechanistic investigations of secondary metabolic enzymes, and the cloning and characterization of secondary metabolic genes.

CHEM 544 TRANSITION METALS IN ORG SYNTH (3)**Transition Metals in Organic Synthesis****CHEM 547 SUPRAMOLECULAR CHEMISTRY (3)****Supramolecular Chemistry**

An examination of noncovalent interactions and their impact in biology, chemistry, and engineering. Topics will include self-assembly, molecular recognition, protein folding and structure, nucleic acid structure, polymer organization, crystallization and applications of the above for the design and synthesis of nanostructured materials.

CHEM 561 ADVANCED ORGANIC CHEM (3)**Advanced Organic Chem**

The disconnection approach to organic synthesis. Heavy emphasis on reactions, reagents, and mechanisms.

CHEM 562 ADV ORGANIC CHEMISTRY (3)**Adv Organic Chemistry**

Continues in the same vein as CHEM 561 but with emphasis on very recent advances in stereoselective synthesis.

CHEM 566 SURFACE PHYSICS (3)**Surface Physics**

An introduction to Surface Physics covering thermodynamics, chemical analysis, electronic structure, crystal structure, phase transitions, surface magnetism, elementary excitations, and optical properties. Includes a discussion of modern surface spectroscopies including photo-electron and scanning tunneling microscopy/spectroscopy. Also offered as Phys 566.

(F) = Fall; (S) = Spring

CHEM 570 CONNECT NANOSCI 9TH GRADE CUR (2)**Connecting Nanoscience to 9th Grade IPC Curriculum**

Seminar with a team of university faculty to refresh and enhance high school Integrated Physics and Chemistry (IPC) teachers understanding of course material. This material will then be connected to ongoing nanotechnology research to act as a stimulating and effective context for teaching scientific concepts. Enrollment limited to 35.

CHEM 575 PHYS METH INORGANIC CHEMISTRY (3)**Physical Methods in Inorganic Chemistry**

A survey course of research techniques used in modern inorganic chemistry. Topics covered will include X-ray diffraction, matrix isolation, mass spectrometry, magnetism, electrochemistry, and various spectroscopies (IR, Raman, UV-Vis, nmr, epr, XPS, EXAFS, and Mossbauer). Open to undergraduates by special permission only.

CHEM 595 SPEC TOP-INORGANIC CHEMISTRY (3)**Special Topics-Inorganic Chemistry**

Rotation of topics include: solid-state chemistry, organometallic chemistry, bioinorganic chemistry, and single-crystal X-ray diffraction. Open to undergraduates by special permission

CHEM 596 CHEM ELECTRONIC MATERIALS (3)**Chemistry of Electronic Materials**

A review of the chemical processes involved in the manufacture of microelectronic chips, including; crystallization, purification, oxidation, thin film methods, lithography and ceramic processing. Open to undergraduates by special permission only.

CHEM 600 INORGANIC SEMINAR (1)**Inorganic Seminar**

Selected topics in current research and literature. Intended for graduate students; undergraduate students must obtain consent of the instructor.

CHEM 601 PHYSICAL SEMINAR (1)**Physical Seminar**

Selected topics in current research and literature. Intended for graduate students; undergraduate students must obtain consent of instructor.

CHEM 602 ORGANIC SEMINAR (1)**Organic Seminar**

Selected topics in current research and literature. Intended for graduate students; undergraduate students must obtain consent of the instructor.

CHEM 606 EFFECT PRESENTATION FOR CHEM (1)**Effective Presentations for Chemists**

Students learn to plan effective technical seminars with applications to chemical conferences such as the national and regional meetings of the American Chemical Society, as well as job interview presentations. Open to undergraduates by special permission only.

CHEM 630 MOLECULAR SPECTROSCOPY & GROUP THEORY (3)**Molecular Spectroscopy and Group Theory**

The spectra of simple molecules, including microwave, infrared, visible, ultraviolet, and Raman spectra; introductory aspects of molecular symmetry and group theory; resonance spectroscopy.

CHEM 700 TEACHING PRACTICUM (2)**Teaching Practicum**

Open to graduate students in chemistry and only in exceptional circumstances to undergraduates.

CHEM 750 MGMT/SCIENTISTS AND ENGINEERS (3)**Management for Scientists and Engineers**

This course is designed for science and engineering students who want to understand the management of new and/or small technology based businesses. The course is taught in modular format to give students insights into how technology oriented firms manage intellectual property, marketing, organization behavior, strategy, accounting and finance. Concepts covered will be particularly relevant to students interested in careers in technology or entrepreneurial ventures. This course is part of a two-class sequence and provides the foundation for students taking NEW VENTURE CREATION for SCIENCE and ENGINEERING which is offered in the spring. Also offered as MGMT 750 and MSCI 750.

(#) = credit hours per semester

CHEM 751 NEW VENTURE FOR SCI&ENGINEERIN (3)**New Venture Creation for Science and Engineering**

This course deals with the concepts and theories relevant to new venture creation. Our primary focus is the start-up process with particular emphasis being placed on market issues, intellectual property and entrepreneurial finance. As part of the course we will evaluate the commercial potential of a live technology drawn from the Rice engineering/science community. The concepts covered will be particularly relevant to students who are interested in careers in technology or entrepreneurial ventures. Course is offered to junior and senior students and graduate students except MBA students. Also offered as MGMT 751 and MSCI 751. Prerequisite(s): MGMT/CHEM/MSCI 750 or equivalent subject to instructor approval.

CHEM 800 GRADUATE RESEARCH (HOURS VARIABLE)**Graduate Research****CHIN (CHINESE)****School of Humanities/Center for Study of Languages****CHIN 101 INTRODUCTORY CHINESE I (5)****Introductory Chinese I**

For students with no background in Chinese. Students will learn Pinyin writing system, vocabulary and structure required for basic communicative tasks. Students will learn to write approximately 100 Chinese characters. Chinese culture will be introduced. Weekly laboratory assignment and tutorial participation are required to receive full credit. Enrollment limited to 20. Prerequisite(s): No prior knowledge of Chinese. Instructor(s): *Yeh*

CHIN 102 INTRODUCTORY CHINESE II (5)**Introductory Chinese II**

Continuation of Chinese 101. More attention will be paid to the Chinese characters while conversation skills still receive priority. Weekly laboratory assignment and tutorial participation are required. Students will learn to write approximately 200 Chinese characters and be able to perform communicative tasks appropriate to this range of characters. Enrollment is limited to 20. Prerequisite(s): CHIN 101, placement test, or permission of the instructor. Instructor(s): *Yeh*

CHIN 201 ELEMENTARY CHINESE I (4)**Elementary Chinese I**

Continuation of Chinese 102. Emphasis on reading, writing, and speaking for personal needs. Weekly attendance in the language lab and participation in weekly tutorials is required. Students will be familiar with approximately 300 characters at the end of the course, and able to perform communicative tasks appropriate to this range of characters. Enrollment limited to 20. Prerequisite(s): CHIN 102, placement test, or permission of the instructor. Instructor(s): *McArthur*

CHIN 202 ELEMENTARY CHINESE II (4)**Elementary Chinese II**

Continuation of Chinese 201. Upon completing 202 students should be able to converse at an intermediate level, write approximately 400 characters, and perform communicative tasks appropriate to this range of characters. The class is conducted primarily in Chinese. Participation in a weekly tutorial is required to receive full credit. Enrollment is limited to 20. Prerequisite(s): CHIN 201, placement test, or permission of the instructor. Instructor(s): *Shen*

CHIN 211 ACCL ELEM CHINESE I (4)**Accelerated Elementary Chinese I**

For students with some background in spoken Chinese but with limited writing ability. Introduces the Chinese writing system and the use of Chinese dictionaries. Students will be familiar with approximately 200 characters at the end of the course, and able to perform communicative tasks appropriate to this range of characters. Enrollment limited to 20. Prerequisite(s): Placement test or permission of the instructor. Instructor(s): *McArthur*

CHIN 212 ACCL ELEM CHINESE II (4)**Accelerated Elementary Chinese II**

Increasing attention paid to narrative texts of an increasing formal style. Writing focused on personal needs, with some attention to social correspondence. Students will be familiar with approximately 400 characters at the end of the course, and able to perform communicative tasks appropriate to this range of characters. Enrollment limited to 20. Prerequisite(s): CHIN 211, placement test, or permission of the instructor. Instructor(s): *McArthur*

(F) = Fall; (S) = Spring

CHIN 301 INTERMEDIATE CHINESE I (4)**Intermediate Chinese I**

For students whose home language is not Chinese. Oral skills cultivated through discussion of narrative texts. Writing is focused on skills necessary for basic personal needs. At the completion of 301, students will be able to write approximately 550 characters and be able to perform communicative tasks appropriate to this range of characters. Enrollment limited to 20. Prerequisite(s): CHIN 202, placement test, or permission of the instructor. Instructor(s): *Chen*

CHIN 302 INTERMEDIATE CHINESE II (4)**Intermediate Chinese II**

Continuation of CHIN 301. By the end of CHIN 302, students should be able to study Chinese on an independent basis, as more native language materials will be used in this course. At the completion of 302, students will be able to write approximately 800 Chinese characters. Enrollment limited to 20. Prerequisite(s): CHIN 301, placement test, or permission of the instructor. Instructor(s): *Shen*

CHIN 311 ACCL INTERMEDIATE CHINESE I (3)**Accelerated Intermediate Chinese I**

Emphasis on reading narrative texts, and understanding authentic oral texts. Writing assignments stress skills necessary for basic personal needs and tasks necessary for writing social correspondence. At the completion of 311, students will be able to write approximately 700 Chinese characters, and be able to perform communicative tasks appropriate to this range of characters. Prerequisite(s): CHIN 212, placement test, or permission of the instructor. Instructor(s): *Shen*

CHIN 312 ACCL INTERMEDIATE CHINESE II (3)**Accelerated Intermediate Chinese II**

Continuation of CHIN 311. More emphasis on reading narratives, comprehending authentic oral texts, and speaking in more formal contexts. Writing assignments stress skills necessary for expressing arguments on socio-cultural topics. At the completion of CHIN 312, students will be able to write approximately 800 Chinese characters. Enrollment limited to 20. Prerequisite(s): CHIN 302, CHIN 311, placement test, or permission of instructor. Ability to write approximately 700 characters assumed. Instructor(s): *Chen*

CHIN 313 MEDIA CHINESE (3)**Advanced Intermediate Chinese: Media Chinese**

This course is designed to familiarize students with the language of print and broadcast media, with a focus on news media. Students will learn strategies and tactics applicable to newspaper reading, and essential skills for understanding television, broadcasting. Contents for discussion include sociopolitical, economic, cultural, and sport news. Prerequisite(s): CHIN 302 or 311, or permission of the instructor. Ability to write 800 characters assumed. Instructor(s): *Shen*

CHIN 314 CONTEMPORARY CHINA (3)**Contemporary China and Economic Reform: Advanced Intermediate Chinese**

This course discusses the Economic Reform in China (starting 1976), and its impacts. Students examine the impacts by studying the voices produced by self-created entrepreneurs, popular novelists, rock-band singers, unemployed workers, and young artists. At the end of CHIN 314 students are expected to express their views of the related issues. Enrollment limited to 15. Prerequisite(s): CHIN 312, CHIN 302, placement test, or the permission of the instructor. Knowledge of 800 characters is assumed. Instructor(s): *Yeh*

CHIN 316 TEXTS FROM POPULAR CULTURE (3)**Text from Popular Culture: Advanced and Intermediate Chinese**

Presents Chinese through film, popular songs, short fiction, and Chinese cuisine. Reading material is generally from authentic texts. Students perform regular short writing assignments in an increasing formal style. Prerequisite(s): CHIN 302, 311, placement test, or permission of instructor. Ability to write approximately 800 characters assumed. Instructor(s): *McArthur*

CHIN 321 CHINESE: SYNTAX & SEMANTICS (3)**Structure of Chinese: Syntax and Semantics**

Examination of syntactic and semantic features of Chinese with special attention to contrastive analysis of selected topics of Chinese and English, including expressions of tense and aspect, conditional and counterfactual, word formation (morphology), the notion of syntactic category, etc. Taught in English. Also offered as LING 321. Enrollment limited to 20. Instructor(s): *Chen*

(#) = credit hours per semester

CHIN 322 TAIWANESE LANG & LIT (3)**Taiwanese Language and Literature**

This course contains two parts running concurrently every week. Part one focuses on language acquisition Online textbook is Taiwanese on Campus, by L. Chen. Emphasis is on daily, practical expressions. Part two is an examination of Taiwanese nativist literature with special attention to its language/cultural and political/historical background. Enrollment limited to 20. Instructor(s): *Chen*

CHIN 330 INTRO TO TRAD CHINESE POETRY (3)**Introduction to Traditional Chinese Poetry**

This course seeks to decode enchanting features of traditional Chinese poetry through examining the transformation of poetic genres, the interaction between poetic creation and political, social, and cultural changes, and the close association of poetry with art. Thus, this course also serves to understand Chinese culture and history through poetic perspectives. All readings in English translation No knowledge of Chinese language required. Also offered as ASIA 330. Instructor(s): *Staff*

CHIN 332 CHINESE FLM & MODRN CHIN LIT (3)**Chinese Films and Modern Chinese Literature**

Exploration of modern Chinese literature through visual imagery of Chinese films. Includes an analysis using literary history and narrative structure to link film adaptations to their original texts with emphasis on narratology and movie theory. Films subtitled in English, shown outside of class. All readings in English translation. Also offered as ASIA 332. Instructor(s): *Staff*

CHIN 334 TRADITIONAL CHINESE TALES (3)**Traditional Chinese Tales and Short Stories**

Learning Chinese Literature and culture through reading vernacular stories, fantastic tales, biographies, and philosophical parables. Discussion topics: literature and Confucianism, Taoism, and Buddhism; literature and history; self and other; fantastic world and reality; women as domestic aliens and aliens portrayed as women; etc. Readings are in English translation. Also offered as ASIA 334. Instructor(s): *Qian*

CHIN 335 INTRO CLASCL CHINESE NOVELS (3)**Introduction to Classical Chinese Literature: Communion With Nature**

Examination of the basic characteristics of classical Chinese novels, primarily through six important works from the 16th to 18th centuries: Water Margin, Monkey, Golden Lotus, Scholars, Romance of the Three Kingdoms, and Dream of the Red Chamber. Also offered as ASIA 335. Instructor(s): *Staff*

CHIN 399 CHINESE TEACHING PRACTICUM (HOURS VARIABLE)**Chinese Teaching Practicum**

This course gives students with advanced proficiency in Chinese the opportunity to acquire teaching experience in tutorial format. Regular meetings with supervising faculty member. Enrollment is limited to 10. Instructor(s): *Yeh*

CHIN 3XX DEPT APPROVED TRANSFER CREDIT (HOURS VARIABLE)**CHIN 411 ADVANCED CHINESE I (3)****Advanced Chinese I**

This course aims at improving student's reading, writing and speaking skills. Readings are authentic texts: chapters or excerpts from Dream of the Red Chamber, Soul Mountain by Gao Xingjian, works by Ba Jin, etc. Compositions and in-depth oral presentations are required. Classroom activities include access to online Chinese news and discussion. Prerequisite(s): Equivalence of CHIN 312, CHIN 313, or CHIN 314, placement test, or permission of the instructor. Instructor(s): *Chen*

CHIN 412 ADV CHIN LANG & CULTURE II (3)**Advanced Chinese Language and Culture II**

Continuation of CHIN 411. Read native Chinese language materials and develop oral and writing skills to express opinions, make comments and critique social issues. Homework includes writing collaborative scripts to perform in class. Prerequisite(s): CHIN 411, placement test, permission of instructor, or ability to write 1000 characters. Instructor(s): *Chen, Lilly*

CHIN 4XX DEPT APPROVED TRANSFER CREDIT (HOURS VARIABLE)**CLAS (CLASSICAL STUDIES)****School of Humanities/Classical Studies****CLAS 101 FRESHMAN SEM:SOCRATES (3)****Freshman Seminar: Socrates: The Man and His Philosophy**

Socrates, the first moral philosopher, was convicted of impiety and executed by his fellow citizens. His influence on Western thought has been immense, though he left no writings. Readings from Plato's dialogues, with emphasis on the Apology and Gorgias. In addition to papers, each participant will make one presentation and lead one. Enrollment limited to 15. Also offered as FSEM 101. Course not offered 2005-2005. Instructor(s): *Yumis*

(F) = Fall; (S) = Spring

CLAS 201 HISTORY OF PHILOSOPHY I (3)**History of Philosophy I**

Survey of the major philosophers and philosophical systems of ancient Greece, from Parmenides to the Stoics. Also offered as PHIL 201 and MDST 201. Course offered Fall 2004. Instructor(s): *Morrison*

CLAS 207 GREEK CIV: HOMER TO ALEX GREAT (3)**Greek Civilization: from Homer to Alexander the Great**

Overview of the literary, artistic, and intellectual achievements of classical Greek civilization from Homer and the Bronze Age through the golden age of classical Athens to the spread of Greek culture in the Hellenistic world. Includes historical background and readings in primary sources. All readings in English. Enrollment limited to 25. Also offered as HUMA 109 and HIST 207. Course offered Fall 2004. Instructor(s): *Yunis*

CLAS 208 ROMAN CIVILIZATION (3)**Roman Civilization**

A survey of Ancient Rome culture from the foundation of the city (8th century BCE) to the fall of the empire in the west (5th century CE). Although the course proceeds chronologically, the focus is not so much on the detailed sequence of historical events as on Roman society and culture. (e.g. literature, art, religion, law) Course offered Spring 05 Instructor(s): *Wallace*

CLAS 209 GREEK AND ROMAN DRAMA (3)**Greek and Roman Drama**

Greek: A reading and dramatic analysis of Aeschylus's *Oresteia* (three plays), *Sophocles's Oedipus the King*, *Oedipus at Colonus*, *Electra* and *Antigone*; The *Medea* *Orestes*, and *Electra* of Euripides. Latin: A reading and analysis of the *Menaechmi* and the *Miles Gloriosus* of Plautus, the *Phormio* of Terence and the *Medea* of Seneca. Also offered as ENGL 209. Course offered Spring 2005. Instructor(s): *Wallace*

CLAS 220 NOVEL IN CLASSICAL ANTIQUITY (3)**The Novel in Classical Antiquity**

Shipwrecks, romance, travel, warfare, feasting, and a man metamorphosis into a donkey. All appear in ancient Greek and Roman prose fiction, examples of which we will read in translation. Topics will include the form's origins, whether the term "novel" adequately defines the texts, and the works' ancient readership. Course not offered 2004-2005 Instructor(s): *McGill*

CLAS 222 PERSPECTIVES ON GREEK TRAGEDY (3)**Perspectives on Greek Tragedy**

Introduction to Greek tragedy, with emphasis on the performance culture of democratic Athens; contemporary philosophical issues and the Greek traditions of poetry and myth. All plays in English translation. Course not offered 2004-2005. Instructor(s): *Yunis*

CLAS 225 WOMEN IN GREECE AND ROME (3)**Women in Greece and Rome**

Survey of the depiction of women in Greek and Roman mythology, literature, and art. Includes a study of the lives of Greek and Roman women as evidenced by archaeological as well as literary materials. Also offered as WGST 225. Course not offered 2004-2005. Instructor(s): *Wallace*

CLAS 301 ANCIENT AND MEDIEVAL PHILOSOPHY (3)**Ancient and Medieval Philosophy**

Topics in the history of philosophy from the 4th century B.C through the 14th century. Also offered as PHIL 301. Course offered Spring 2005. Instructor(s): *Morrison*

CLAS 311 TEXT AS PROPERTY (3)**Text as Property, Property as Text: Across the Ages**

Examines forms and norms of authorship and ownership from antiquity to the present. What is an author? Is a text public or private property? What are the licit/illicit forms of rewriting and appropriating a text, and how are those forms defined? This class investigates historically these and other issues. Also offered as ANTH 321. Course not offered 2004-2005. Instructor(s): *McGill*

CLAS 312 GREEK ART AND ARCHITECTURE (3)**Greek Art and Architecture**

A chronological survey of sculpture, painting, and architecture of Greece, and the Aegean Islands, and Western Asia Minor from the Bronze Age through the Hellenistic period (3300-31 BC). Analysis of style, content, and purpose within the cultural and historical contexts. Also offered as HART 312. Course not offered 2004-2005. Instructor(s): *Quenemoen*

(#) = credit hours per semester

CLAS 315 ROMAN ART AND ARCHITECTURE (3)**Roman Art and Architecture**

A chronological survey of Roman sculpture, painting, and architecture from its Etruscan beginnings to the late Empire. Art and architecture of Rome and the provinces considered within their larger social, political, and urban contexts. Particular attention given to patronage, the relation between Roman and Greek art, and Rome's position as an artistic center. Also offered as HART 315 and AMC 315. Course not offered 2004-2005. Instructor(s): *Quenemoen*

CLAS 316 POLI THEORY IN ANCIENT GREECE (3)**Democracy and Political Theory In Ancient Greece**

This course will consider how democracy arose and developed in classical Greece. The course will consider how Athenian direct democracy functioned and what are the differences between ancient and modern democracy. Course not offered 2004-2005. Instructor(s): *Yunis*

CLAS 318 THE INVENTION OF PAGANISM (3)**The Invention of Paganism In the Roman Empire**

This interdisciplinary course examines the development of the concept of "paganism" during the Roman empire, during the first through seventh centuries AD. We will examine the mutually tolerant character of the many religions of the Roman world and see how the category of paganism was invented and applied by Christians to all the polytheists of the empire and beyond. Also offered as HIST 316 and RELI 316. Course not offered 2004-2005. Instructor(s): *McGill, Maas*

CLAS 320 THE AGE OF AUGUSTUS (3)**The Age of Augustus**

After defeating Antony and Cleopatra the emperor Augustus restored stability to Rome, oversaw the expansion of empire, and made Rome a capital city. Study of art and literature of this 'Golden Age' will address Augustus' construction of identity, imperial and non-imperial patronage, and the formation of Augustan ideology in Rome and the provinces. Also offered as HART 320. Course offered Fall 2004. Instructor(s): *McGill; Quenemoen*

CLAS 335 CLASSICAL MYTHOLOGY (3)**Classical Mythology**

Introduction to the Greek myths, their form and function in ancient society, and their afterlife in modern European literature. Includes discussion of a variety of theoretical approaches to myth. All works read in English translation. Course not offered 2004-2005. Instructor(s): *Mackie*

CLAS 336 THE ORIGIN OF THE LANGUAGES (3)**The Origin of the Languages of Europe**

Languages as superficially different as English, Greek, Latin, and Sanskrit in fact all developed from a single "proto-language". This course will explore the following questions: What was this proto-language like? How do we know what it was like? What can we learn about its speakers on the basis of the words that have survived in the various daughter languages? Course not offered 2004-2005. Instructor(s): *Staff*

CLAS 337 EPIC AND NOVEL (3)**Epic and Novel**

Why did novelists of the eighteenth, nineteenth, twentieth centuries allude to classical epic, and how did they transform the genre? We will address these questions, reading the Homeric and other ancient epics alongside such novels as Fielding's *Tom Jones*, Eliot's *Middlemarch*, and Joyce's *Ulysses*. Also offered as ENGL 335. Course not offered 2004-2005. Instructor(s): *Mackie*

CLAS 339 MYTHS OF OTHERWORLD JOURNEY (3)**Myths of Otherworld Journey**

Analysis and comparison of myths of "otherworld journey" in ancient, medieval, and modern texts. Who are the typical tellers of and audiences for such tales, and how do they function both in their immediate and in their broader cultural contexts? All works read in English translation. Course not offered 2004-2005. Instructor(s): *Mackie*

CLAS 351 EPIC AND SAGA (3)**Epic and Saga**

A comparison of ancient and medieval epics. All works read in translation. Course not offered 2004-2005. Instructor(s): *Mackie*

CLAS 491 SPECIAL TOPICS (3)**Special Topics**

Independent work. Open to qualified juniors and seniors. Course offered Fall 2004. Instructor(s): *Staff*

CLAS 492 SPECIAL TOPICS (3)**Special Topics**

Independent work for qualified juniors and seniors. Course offered Spring 2005. Instructor(s): *Staff*

(F) = Fall; (S) = Spring

CLAS 493 SENIOR THESIS (3)**Senior Thesis**

Open to classics majors in the final semester of study. Thesis, to be written on a topic of the student's choice in consultation with a member of the faculty. Course offered Spring 2005. Instructor(s): *Staff*

COMP (COMPUTER SCIENCE)**School of Engineering/Computer Science****COMP 100 INTRO COMPUTING AND INFORMATION (3)****Introduction to Computing and Information Systems**

Introduction to computer organization, operating systems, programming languages, artificial intelligence, and programming. Not intended for science-engineering students. May not be taken for credit after any other programming course. Enrollment limited to 35.

COMP 110 COMPUTATION IN SCI&ENGINEERING (3)**Computation In Science and Engineering**

The course introduces basic techniques for problem solving and visualization using computational environments such as Mathematica and Matlab. Class will consist of a mixture of traditional lectures held in classrooms and self-paced modules covering topics in science and engineering that will be completed in Symonds II. No previous experience is required or expected. Also offered as NSCI 230.

COMP 200 ELEMENTS OF COMPUTER SCIENCE (3)**Elements of Computer Science**

Broad introduction to major topics in computer science. Includes algorithms, mathematical models of computation, machine organization and design, programming languages, communication, and artificial intelligence. Open to nonscience and nonengineering students.

COMP 210 PRIN COMPUTING AND PROGRAMMING (4)**Principles of Computing and Programming**

Programming methodology and problem solving. This course teaches students the practical skills required to write and to modify programs. Historically, the course has been taught in Scheme, with an emphasis on functional programming. That version of the course will be offered in the Fall of 2004. In the Spring of 2005, the course will be taught in Java, with an emphasis on object-oriented programming. The content of COMP 212 shifts to match the version of 210 taught in the prior semester. A student may not receive credit for COMP 211 after taking COMP 210 test-driven approach to writing programs, which is the essence of state-of-art "agile" software engineering methodologies such as eXtreme Programming. OOP is the most pervasive paradigm for constructing modern software systems. Computer professionals and non-professionals alike will require a solid background in OOP to understand and effectively utilize these systems. This course is recommended for Engineering and other non-COMP majors, plus students who have yet not committed to a COMP major. This course is a pilot for the first semester of a new two-semester COMP 201/202 introduction to computing targeted at non-COMP majors. Starting in Fall 04, there will be two different introductory programming sequences: COMP 201/202 targeted at non-COMP majors and COMP 210/212 targeted at COMP majors. COMP 202 and (Scheme-based) COMP 210 will be offered in Fall 04. Unlike the existing COMP 210/212 sequence, the new course sequence uses Java exclusively; it does not cover functional programming in Scheme. Students who take the new sequence and subsequently decide to major in COMP can enter the major by taking a hour 1-hour course on functional programming in Scheme that will be offered each spring starting in Spring 05. For further information, see <http://www.rice.edu/~comp210> or contact Cory Cartwright (cork@rice.edu), Dung Nguyen (dxnguyen@rice.edu), or Stephen Wong (swong@rice.edu).

COMP 211 INTRODUCTION TO PROGRAMMING (3)**Introduction to Programming**

Introduction to programming using Pascal. Problem solving and algorithms, elementary data structures, procedures and functions, debugging. NOTE: Only ONE of COMP 211 or 212 may be counted for distribution.

COMP 212 INTERMEDIATE PROGRAMMING (4)**Intermediate Programming**

Programming methodology and problem solving in an object oriented programming language. Recursion, data structures, introduction to analysis of algorithms, sorting techniques. NOTE: Only one of 211 or 212 may be counted for distribution. Prerequisite(s): COMP 210.

COMP 280 MATHEMATICS OF COMPUTATION (3)**Mathematics of Computation**

Mathematical induction, recursive definitions and recurrence equations, finite state machines, computability, logic. Also offered as BIOE 280. Prerequisite(s): COMP 210 and MATH 102.

(#) = credit hours per semester

COMP 290 COMPUTER SCIENCE PROJECTS (3)**Computer Science Projects**

Theoretical and experimental investigations under staff direction.

COMP 300 ORGANIZATIONS IN THE INFORMATION AGE (3)**Organizations In the Information Age**

We will review the remarkable technology of the Information Age and examine some of its effects on businesses and institutions. Information technology is re-shaping the structure of organizations and markets and challenging business leaders to re-think the ways in which businesses will prosper in the years ahead. We will explore these challenges and also speculate about the ways in which advancing information technology might further transform organizations.

COMP 311 PROGRAMMING LANGUAGES (4)**Programming Languages**

The design, definition and abstract implementation of programming languages including methods for precisely specifying syntax and semantics.

COMP 312 PROGRAM CONSTRUCTION (4)**Program Engineering**

Introduction to methods and tools of programs by teams; pattern-based design: modules; safe programming. Prerequisite(s): COMP 210, COMP 212, and COMP 311.

COMP 314 APPLIED ALGORITHMS AND DATA STRUCTURE (4)**Applied Algorithms and Data Structures**

Design analysis of computer algorithms and data structures useful for applied problems. Laboratory assignments will use these techniques in conjunction with advanced programming methods. Also offered as ELEC 322. Prerequisite(s): COMP 212 and COMP 280.

COMP 320 INTRODUCTION TO COMPUTER ORGANIZATION (4)**Introduction to Computer Organization**

Microprocessor architecture, including the memory hierarchy, pipelining, I/O devices, and interrupts and concurrency. Computer representation of and operations on basic data such as instructions, integers, floating point numbers, and pointers. Low-level programming in C and assembly language. Basic system software. Performance issues.

COMP 326 DIGITAL LOGIC DESIGN (3)**Digital Logic Design**

Gates, flip-flops, combinational and sequential switching circuits, registers, logical and arithmetic operations.

COMP 360 COMPUTER GRAPHICS (4)**Computer Graphics**

D graphics techniques including fast line and curve drawing and polygon filling. 3D graphics problems including representation of solids, shading, and hidden surface elimination. Fractals, graphics standards.

COMP 390 COMPUTER SCIENCE PROJECTS (3)**Computer Science Projects**

See Comp 290.

COMP 409 LOGIC IN COMPUTER SCIENCE (3)**Logic In Computer Science**

Set theoretical concepts. Propositional and first-order logic. Soundness and completeness, incompleteness, undecidability. Functional programming as an extension of first-order logic. Logical issues in computer science. Prerequisite(s): COMP 210 and 280.

COMP 410 SOFTWARE ENGINEER METHODOLOGY (4)**Software Engineering Methodology**

Designing software for effective implementation and maintenance. Formal techniques for program specification and correctness proofs. Case studies examining what works, what doesn't and why. Programming assignments will include maintenance exercises and team projects. Prerequisite(s): COMP 210, 212, and 311.

COMP 411 ADVANCED PROGRAMMING LANGUAGES (4)**Advanced Programming Languages**

The design, definition and abstract implementation of programming languages including methods for precisely specifying syntax and semantics. Fall semester only. Prerequisite(s): COMP 212 and COMP 280.

COMP 412 COMPILER CONSTRUCTION (4)**Compiler Construction**

Topics in the design of programming language translators, including parsing, run-time storage management, error recovery, code generation and optimization.

(F) = Fall; (S) = Spring

COMP 413 DISTRIB PROGRAM CONSTRUCTION (4)**Distributed Program Construction**

This course focuses on modern principles for the construction of distributed programs, with an emphasis on design patterns, modern programming tools, and distributed object systems. The material will be applied in a substantial software design/construction project.

COMP 420 INTRO TO DISTRIBUTED COMP SYS (4)**Introduction to Distributed Computer Systems**

Introduction to advanced operating systems and distributed systems. The course covers concepts, architecture, algorithms, protocols and implementation focusing on distribution, scale, robustness in the face of failure, and security.

COMP 421 OPERAT SYSTMS AND CONCUR PROGRAMM (4)**Operating Systems and Concurrent Programming**

Introduction to the design, construction, and analysis of concurrent programs with an emphasis on operating systems, including filing systems, schedulers, and memory allocators. Specific attention is devoted to process synchronization and communication within concurrent programs. Also offered as ELEC 421. Prerequisite(s): COMP 212 and 320.

COMP 422 PARALLEL COMPUTING (4)**Parallel Computing**

Need for parallel computing; Models of parallel computations; Basic algorithms on PRAM machines; Architectures of parallel computing; mapping and scheduling in parallel computers; Program design for parallel computations. The course includes an extensive programming component.

COMP 425 COMPUTER SYSTEMS ARCHITECTURE (4)**Computer Systems Architecture**

Design of advanced uniprocessor system architecture and basics of parallel architectures. Advanced pipelining, including dynamic scheduling and precise interrupt handling. Advanced techniques for exploiting instruction level parallelism, including superscalar and VLIW architectures. Case studies of several recent high-performance microprocessors. Vector processors. Memory system design--techniques to improve cache performance, virtual memory systems, main memory enhancements. I/O systems--disk arrays and graphical interfaces. An overview of parallel computers. Also offered as ELEC 425.

COMP 429 INTRO TO COMPUTER NETWORKS (3)**Introduction to Computer Networks**

Network architectures and basic protocols. Routing and flow control. Access methods. Transmission media, error management. Network performance. The course will cover several types of networks, including CSMA/CD, token ring, and ATM. Also offered as ELEC 429.

COMP 430 INTRO TO DATABASE SYSTEMS (4)**Introduction to Database Systems**

Survey of database system design and implementation. Physical data organization. Relational databases. Object-oriented databases. Query languages. Query optimization. Transaction processing. Concurrency control. Recovery.

COMP 440 ARTIFICIAL INTELLIGENCE (4)**Artificial Intelligence**

Techniques for simulating intelligent behavior by machine, problem solving, game playing, pattern perceiving, theorem proving, semantic information processing, and automatic programming. Also offered as ELEC 440. Prerequisite(s): COMP 210.

COMP 450 ALGORITHMIC ROBOTICS (4)**Algorithmic Robotics**

An introduction to computing object motion in application domains such as robotics, manufacturing, animation, and pharmaceutical drug design. Topics covered include motion planning in known and partially known environments, uncertainty, manipulation, and assembly planning.

COMP 460 ADVANCED COMPUTER GRAPHICS (4)**Advanced Computer Graphics**

Advanced topics in computer graphics and geometric modeling, including B-spline curves and surfaces, solid modeling, radiosity, morphing, animation, simulation, subdivision, fractals, wavelets, and other selected topics as time permits. Not offered every year. Prerequisite(s): COMP 360

COMP 481 AUTOMATA, FORMAL LAN AND COMPUTABL (3)**Automata, Formal Languages, and Computability**

Finite automata, regular expressions, regular languages, pushdown automata, context-free languages, Turing machines, recursive languages, computability, and solvability. Prerequisite(s): COMP 314

(#) = credit hours per semester

COMP 482 DESIGN AND ANALYSIS OF ALGORITHMS (3)**Design and Analysis of Algorithms**

Methods for designing and analyzing computer algorithms and data structures. The focus of this course will be on the theoretical and mathematical aspects of algorithms and data structures. Also offered as ELEC 420.

COMP 485 FUND MEDICAL IMAGING I (3)**Fundamentals of Medical Imaging I**

Fundamentals of various medical imaging modalities (e.g., x-ray, CT, and MRI) used to identify the anatomy of human organs, as well as other modalities (e.g. PET, SPECT, fMRI, and MEG) specifically developed to identify the function of the brain. Also offered as BIOE 485, BIOE 685, and ELEC 485.

COMP 486 FUND MEDICAL IMAGING II (3)**Fundamentals of Medical Imaging II**

This course is directed towards graduate and senior undergraduate students interested in acquiring an in depth knowledge of Positron Emission Tomography (PET). The course will focus on PET physical principles, image formation, and processing. The course will also cover the various correction techniques used to quantify PET images as well as lay the foundations for understanding tracer kinetic modeling. A field trip to MD Anderson's PET facility will be organized to provide the students with hands on experience of PET imaging and data analysis. The use of PET imaging in various medical applications will also be covered. Also offered as BIOE 486 and ELEC 486. Prerequisite(s): BIOE/ELEC/COMP 485.

COMP 490 COMP SCIENCE PROJECTS (HOURS VARIABLE)**Computer Science Projects**

Theoretical and experimental investigations under staff direction.

COMP 491 COMPUTER SCIENCE TEACHING (3)**Computer Science Teaching**

A combination of in-service teaching and a seminar.

COMP 492 COMPUTER SCI HONORS PROJECT (HOURS VARIABLE)**Computer Science Honors Project****COMP 502 NEURAL NETWORKS&INFORMATN THEOR (3)****Neural Networks and Information Theory I**

Review of major Artificial Neural Network paradigms. Analytical discussion of supervised and unsupervised learning. Emphasis on state-of-the-art Hebbian (biologically most plausible) learning paradigms and their relation to information theoretical methods. Applications to data analysis such as pattern recognition, clustering, classification, blind source separation, non-linear PCA. <http://www.ece.rice.edu/~erzsebet/ANNcourse.html>. Also offered as ELEC 502. Prerequisite(s): ELEC 430, 431, or consent of instructor.

COMP 511 MULTI-STAGE PROGRAMMING (4)**Multi-Stage Programming**

Multi-stage programs can generate other programs at runtime, compile them, and execute them. Such programs can be significantly faster than single-stage ones. This course introduces multi-stage languages, their applications, theory, and implementation techniques. Coursework includes reading assignments, discussions, and various kinds of programming exercises using one such language (MetaOCaml).

COMP 512 ADVANCED COMPILER CONSTRUCTION (4)**Advanced Compiler Construction**

Advanced topics in the design and implementation of programming language translators. Data flow analysis and optimization, code generation and register allocation, attribute grammars and their evaluation, translation within programming environments, the implementation of advanced language features.

COMP 515 ADV COMPILATION VECTOR PARALEL (4)**Advanced Compilation for Vector Parallel Processors**

Advanced compilation techniques for vector and parallel computer systems, including the analysis of program dependence, program transformations to enhance parallelism, compiler management of the memory hierarchy, interprocedural data flow analysis, and parallel debugging.

COMP 517 RESOURCE AWARE PROGRAMMING (4)**Resource Aware Programming**

This course explores the design space for high-level languages that can support the more specialized task of resource-aware programming (RAP). Three research papers are covered each week with emphasis placed on developing the skills needed to read, understand, and present current research papers. In addition, the course includes an interactive reading group component. Prerequisite(s): COMP 212, COMP 280. Instructor(s): Taha

(F) = Fall; (S) = Spring

COMP 520 DISTRIBUTED SYSTEMS (4)**Distributed Systems**

Distributed systems: workstations, local area networks, server machines. Multiprocess structuring and interprocess communication. File access and memory management. User interfaces: window systems and command interpreters. Case studies of selected distributed systems. Emphasis on performance aspects of system software design.

COMP 523 COMPUTER-AIDED DESIGN FOR VLSI (3)**Computer Aided-Design for VLSI**

Fundamental topics in computer-aided design for VLSI: logic synthesis and formal verification, timing analysis and optimization, technology mapping, logic and fault simulation, testing, and physical design will be covered. Relevant topics in algorithms and data structures, generic programming, and the C++ standard template library will also be covered. Also offered as ELEC 523.

COMP 524 MOBILE AND WIRELESS NETWORKING (3)**Mobile and Wireless Networking**

Study of network protocols for mobile and wireless networking, particularly at the media access control, network, and transport protocol layers. Focus is on the unique problems and challenges presented by the properties of wireless transmission and host or router mobility. Also offered as ELEC 524.

COMP 525 ADV MICROPROCESSOR ARCH (4)**Advanced Microprocessor Architecture**

Exploration of the current trends and future directions of microprocessor architecture. Includes topics such as technology trends that affect microprocessor architecture, modern microprocessor design, techniques for statically and dynamically maximizing parallelism, memory system issues, and proposed future microprocessor architectures. Also offered as ELEC 525. Prerequisite(s): ELEC 425.

COMP 526 HIGH PERFORM COMPUTER ARCH (4)**High-Performance Computer Architecture**

Design of high performance computer systems, including shared-memory and message-passing multiprocessors and vector systems. Hardware and software techniques to tolerate and reduce memory and communication latency. Case studies and performance simulation of high-performance systems. Also offered as ELEC 526.

COMP 527 COMPUTER SYSTEMS SECURITY (4)**Computer Systems Security**

This class will focus on computer security in real systems. We will cover theory and practice for the design of secure systems (formal modeling, hardware and compiler-enforced safety, software engineering processes, tamper-resistant and tamper-reactive hardware, firewalls, cryptography, and more).

COMP 529 COMPUTER NETWORK (4)**Computer Network Protocols and Systems**

Graduate level course on the study of protocols and systems for wide-area internetworks with an emphasis on the challenges presented by the scale and complexity of the Internet. Topics include network architecture, router design, intra- and inter-domain routing, multicast services, congestion control, quality of service, network security, active and overlay network, network management. Prerequisite(s): COMP 429, ELEC 429 Instructor(s): Ng

COMP 540 ADAPTIVE SYSTEMS (4)**Adaptive Systems**

Multi-disciplinary methods of designing and analyzing adaptive systems. Discussion of recent research in the areas of planning, scheduling and control as well as machine learning.

COMP 550 TOPICS IN PHYSICAL COMPUTING (4)**Topics In Physical Computing**

Advanced topics in the design and application of algorithms for solving problems in the physical world.

COMP 559 MIGRATION & DISPLACEMENT (4)**COMP 561 GEOMETRIC MODELING (3)****Geometric Modeling**

Exploration of curves and surfaces (e.g. parametric form, implicit form, and conversion between forms), the representation of solida (e.g., wireframes, octrees, boundary representations, and constructive solid geometry), and applications (e.g., graphics, motion planning, simulation, and finite element mesh generation. Prerequisite(s): COMP 314

COMP 590 COMPUTER SCIENCE PROJECTS (HOURS VARIABLE)**Computer Science Projects**

Advanced theoretical and experimental investigations under staff direction.

(#) = credit hours per semester

COMP 600 GRADUATE SEMINAR (1)**Graduate Seminar**

A discussion of selected topics in computer science.

COMP 602 NEURAL NETWORKS&INFORMATN THRY (3)**Neural Networks and Information Theory II**

Advanced topics in ANN theories, with a focus on Self-Organizing Maps and unsupervised learning. The course will be a mix of lectures and seminar discussions with active student participation, based on most recent research publications. Students will have access to professional software environment to implement theories. Enrollment limited to 10. Also offered as ELEC 602.

COMP 607 AUTOMATED PROGRAM VERIFICATION (1)**Automated Program Verification**

Methods, tools and theories for the computer-aided verification of concurrent systems.

COMP 610 GRAD SEM PROGMM LANGUAGE (1)**Graduate Seminar In Programming Languages**

A discussion of programming language semantics in computer science.

COMP 612 GRAD SEM COMPILER CONSTRUCTION (2)**Graduate Seminar In Compiler Construction**

Topics in construction of programming language translators.

COMP 613 GRAD SEM ADVAN LANG IMLEM (3)**Graduate Seminar In Advanced Language Implementation**

Topics in advanced language implementation.

COMP 615 PARALLEL PROGRAMMIN SYSTEMS (2)**Parallel Programming Systems**

This course will explore topics in parallel programming environments and compilers for parallel computers.

COMP 617 GRAD SEM RESOURCE AWARE PROG (HOURS VARIABLE)**Graduate Seminar In Resource Aware Programming**

While high-level programming languages can be very helpful for general-purpose programming, they can be unsuitable for programming systems that interact directly with the physical world. Such systems include real-time and embedded systems. This seminar explores the design space for high-level languages that can support the more specialized task of resource-aware programming (RAP). Enrollment limited to 20.

COMP 620 GRAD SEM IN DISTRIBUTED COMPUT (1)**Graduate Seminar In Distributed Computing**

Content varies at discretion of instructor.

COMP 625 GRADUATE SEMINAR (3)**Graduate Seminar on Computer Architecture**

Subjects covering virtual memory and security structures, pipelines and vector processing, instruction set definitions, multi-threading, will be discussed. Both contemporary and "ancient systems" will be analyzed.

COMP 629 GRAD SEM IN COM NETWORKING (1)**Graduate Seminar In Computer Networking**

This course will explore research topics in computer networking with an emphasis on the Internet. Topics include network algorithms and protocols, quality of service, network measurement, network management, network security, overlay networking. Enrollment is limited to 25.

COMP 630 MULTITIER WIRELESS NETWORKS (3)**Multitier Wireless Networks**

Topics in multitier wireless networks

COMP 640 GRADUATE SEMINAR (3)**Graduate Seminar In Machine Learning**

A reading course covering the latest developments in statistical machine learning and pattern recognition.

COMP 650 GRAD SEM PHYSICAL COMPUTING (1)**Graduate Seminar on Physical Computing**

Algorithmic issues related to physical problems of all scales, from the molecular to the astrophysical.

COMP 661 GRAD SEM:GEOMETRIC COMPUTATION (3)**Graduate Seminar: Geometric Computation**

(F) = Fall; (S) = Spring

COMP 661 FUND MEDICAL IMAGING (3)**Fundamentals of Medical Imaging**

The course will introduce basic medical imaging modalities, such as x-ray, CT, and MRI, used to identify the anatomy of human organs, as well as other modalities, such as PET, SPECT, fMRI, and MEG, specifically developed to localize brain function. The course includes visits to clinical sites. Also offered as ELEC 685 and BIOE 685.

COMP 690 RESEARCH AND THESIS (HOURS VARIABLE)**Research and Thesis****COMP 800 GRADUATE RESEARCH (HOURS VARIABLE)****Graduate Research****CSCI (COGNITIVE SCIENCES)****No College Designated/Cognitive Sciences****CSCI 390 SUPERV RESRCH COGNITIVE SCI (3)****Supervised Research In Cognitive Sciences**

Supervised research on topics relevant to the cognitive sciences. Limited to majors in Cognitive Sciences. Prerequisite(s): Permission of instructor(s) required.

CSCI 481 HONORS PROJECT (3)**Honors Project**

Independent directed research toward preparation of an undergraduate honors project or thesis. Prerequisite(s): Approval of Program Director.

CSCI 482 HONORS PROJECT (3)**Honors Project**

Independent directed research toward preparation of an undergraduate honors project or thesis. Approval of Program Director required.

ECON (ECONOMICS)**School of Social Sciences/Economics****ECON 211 PRINCIPLES OF ECONOMICS I (3)****Principles of Economics I**

Introduction to the nature of economics. Includes price systems, household decisions, cost and supply, marginal productivity and capital theory, industrial organization and control, economic efficiency, externalities, and public goods. Required for economics and mathematical economic analysis majors. May also be offered in the summer. Students (both majors and non-majors) enrolled at Rice who wish to transfer this course from another institution must pass a departmental qualifying examination. Unlimited enrollment for section taught by professor. Enrollment limited to 25.

ECON 212 PRINCIPLES OF ECONOMICS II (3)**Principles of Economics II**

Includes the measurement and determination of national income; money, banking, and fiscal policy; business cycles, unemployment, and inflation; international trade and balance of payments, and other contemporary economic problems. Required for economics and mathematical economic analysis majors. Prerequisite(s): ECON 211. May also be offered in the summer. Students (majors and non-majors) enrolled at Rice who wish to transfer this course from another institution must pass a department qualifying examination. Unlimited enrollment for section taught by professor. Other sections limited to 25.

ECON 355 FINANCIAL MARKETS (3)**Financial Markets And Institutions**

Study the principles of U.S. and international equity and debt markets, and the interactions between such markets and various countries' monetary and exchange rate policies. The role of financial markets and institutions in the allocation and transfer of credit and risk is highlighted, and various existing and suggested regulatory frameworks are discussed. Enrollment limited to 75. Prerequisite(s): ECON 211 and 212.

ECON 370 MICROECONOMIC THEORY (3)**Microeconomic Theory**

Intermediate level analysis of markets, firms, households, income distribution, and general equilibrium. Required for economics and mathematical economic analysis majors. May also be offered in the summer. Enrollment limited to 75. Prerequisite(s): ECON 211, MATH 101, or MATH 111 & 112 or equivalents.

(#) = credit hours per semester

ECON 375 MACROECONOMIC THEORY (3)**Macroeconomic Theory**

Micro-foundations of macroeconomic theory. Required for mathematical economic analysis majors. Enrollment limited to 75. Prerequisite(s): ECON 211, 212, 370, MATH 101, 102, or equivalents.

ECON 382 PROBABILITY AND STATISTICS (3)**Probability and Statistics**

Study of probability theory and the central concepts and methods of statistics with applications to economics, marketing, and finance. Required for mathematical economic analysis majors; may substitute STAT 410 or 431. Also offered as STAT 310. Prerequisite(s): ECON 211 and MATH 102.

ECON 400 ECONOMETRICS (3)**Econometrics**

Survey of estimation and forecasting models. Includes multiple regression time series analysis. Prerequisite(s): ECON 382 (STAT 310) or STAT 381, and MATH 355 or permission of instructor. A good understanding of linear algebra is highly desirable. Required for mathematical economic analysis majors.

ECON 403 SENIOR INDEPENDENT RESEARCH (3)**Senior Independent Research**

Independent research project for seniors on an approved topic of their choice. Prerequisite(s): Permission of instructor.

ECON 404 SENIOR INDEPENDENT RESEARCH (3)**Senior Independent Research**

Independent research project for seniors on an approved topic of their choice. Prerequisite(s): Permission of instructor.

ECON 415 LABOR ECONOMICS (3)**Labor Economics**

Covers a number of topics relating to labor supply, labor demand, and equilibrium in the labor market. The course presents theoretical and empirical work in each of the subject areas covered. The presentation requires that students have a firm foundation in microeconomic theory, and it requires that students be willing to improve, over the course of the semester, their ability to apply the basic tools of microeconomic analysis. Though Econ 415 requires no prior courses in statistics or econometrics, some elementary knowledge of these subjects will be necessary for an understanding of the empirical work discussed in the course. Consequently, students in this course should be prepared to study some of the empirical techniques used by labor economists. Prerequisite(s): ECON 211, 370, MATH 101, 102 (or equivalent).

ECON 420 INTERNATIONAL TRADE (3)**International Trade**

Study of the economic relationships between countries. Includes trade theory, tariffs and other trade restrictions, international finance, trade and development, and current policy issues. Not offered every year. Prerequisite(s): ECON 211, 212, 370.

ECON 421 INTERNATIONAL FINANCE (3)**International Finance**

Analysis of foreign exchange and international capital markets and linkages between exchange rates, interest rates, and prices. Includes an overview of historical and institutional developments, and current policy issues. Not offered every year. Prerequisite(s): ECON 370, 375, STAT 280 or ECON 382.

ECON 435 INDUSTRIAL ORGANIZATION (3)**Industrial Organization**

Study of market structure, concentration, barriers to entry, and oligopoly pricing. Includes the application of micro theory to industry problems. Prerequisite(s): ECON 211, MATH 101, 02 or permission of instructor.

ECON 436 REGULATION (3)**Regulation**

Analysis of governmental regulatory activities under antitrust laws and in such regulated industries as communications, energy, and transportation. Prerequisite(s): ECON 211. ECON 370 and 435 are recommended.

ECON 437 ENERGY ECONOMICS (3)**Energy Economics**

Discussion of key aspects in the supply and demand of energy. Topics include optimal extraction of depletable resources, transportation, storage, end-use and efficiency, and the relationship between economic activity, energy, and the environment. Enrollment limited to 50. Prerequisite(s): ECON 212, 211, 370, and 375.

(F) = Fall; (S) = Spring

ECON 438 ECONOMICS OF THE LAW I (3)**Economics of The Law I**

Exploration of the role of economics in understanding the legal system. Includes applications to contracts, property, rights, and torts and crime. Enrollment limited to 75. Prerequisite(s): ECON 211, 370, and permission of the instructor. Students wishing to enroll in this course should submit a one-page statement to the instructor explaining their interest in the course. Enrollment limited to 25.

ECON 439 TORTS, PROPERTY, AND CONTRACTS (3)**Torts, Property and Contracts**

The course will address the role of economics in understanding the legal system, in particular, understanding how the law allocates entitlements and risk in property, tort and contract law. This course is primarily intended for students who are considering attending law school and uses instruction methods appropriate for that goal. Grading will be based substantially on a major paper, as well as, class participation. Enrollment limited to 25. Prerequisite(s): ECON 211, 370, and permission of the instructor. Students wishing to enroll in this course should submit a one-page statement to the instructor explaining their interest in the course.

ECON 440 RISK, UNCERTAINTY AND INFO (3)**Risk, Uncertainty and Information**

Microeconomic foundations of finance and insurance and other economic decisions involving risk and uncertainty. Prerequisite(s): ECON 370, MATH 212 and some familiarity with probability theory. Not offered every year.

ECON 445 MANAGERIAL ECONOMICS (3)**Managerial Economics**

Application of economics to decision making within the firm. Includes organization theory and problems of control. Not offered every year. Prerequisite(s): ECON 211 and ECON 370.

ECON 446 APPLIED ECONOMETRICS (3)**Applied Econometrics**

Applied econometrics methods; focus will be on the application of econometrics and complementary measurement methodologies to modeling, forecasting, and hypothesis testing. Applications will include firm decision-making, testing for discrimination in the workplace, competition policy, portfolio management, and macroeconomic forecasting. Not offered every year. Prerequisite(s): ECON 211, 212, 382, STAT 310 or permission of instructor. Some knowledge of calculus is required.

ECON 448 CORPORATE FINANCE (3)**Corporate Finance**

Study of financial theory and its application to practical problems in corporations covers the valuation of stocks and bonds, investment decisions, financing decisions, corporate control and the interaction between investment and financing decisions. Prerequisite(s): ECON 211 and ACCO 305. An elementary knowledge of algebra calculus and statistics also is required.

ECON 449 BASICS/FINANCIAL ENGINEERING (3)**Basics of Financial Engineering**

The course will cover the following: mathematical background for continuous time stochastic modeling in finance and financial engineering; statistical methodologies to estimate and test the models commonly used in finance and financial engineering; and applications which all include, Black-Scholes option pricing and term structure models for interest rates. Prerequisite(s): ECON 400 or STAT 421 and 431 or equivalent; and MATH 221 and 222, or equivalencies.

ECON 450 WORLD ECON AND SOCIAL DEVELOPMENT (3)**World Economic and Social Development**

Examines past and future development in advanced and poor countries, emphasizing resources, population, entrepreneurship, education, and planning. Not offered every year. Prerequisite(s): ECON 211, 212.

ECON 451 ECONOMY OF LATIN AMERICA (3)**The Political Economy of Latin America**

Examination of economic and political development, as well as, current policy, in contemporary Latin America. Includes a comparative analysis of selected countries, with emphasis on the interaction between public policies and economic outcomes. Not offered every year. Prerequisite(s): ECON 211.

ECON 452 ISLAMIC LAW, ECON, & FINANCE (3)**Islamic Law, Economics, and Finance**

Introduction to Islamic law; Islamic, legal theory, and Islamic jurisprudence of financial transactions. Economic analysis of Islamic financial jurisprudence, and the growing Islamic finance industry. Not offered every year.

(#) = credit hours per semester

ECON 455 MONEY AND FINANCIAL MARKETS (3)**Money and Financial Markets**

Micro-foundation of monetary, fiscal and financial theory. Not offered every year. Prerequisite(s): ECON 211, 212, 370, MATH 101, 102 or equivalents.

ECON 461 URBAN ECONOMICS (3)**Urban Economics**

Economic analysis of the development and problems of urban areas, with emphasis on current policy issues. Not offered every year. Prerequisite(s): ECON 211 or permission of instructor.

ECON 472 INTRODUCTION TO GAME THEORY (3)**Introduction to Game Theory**

Study of solution concepts for different games (e.g. strategic form game, coalition form game and extensive form game). Includes elementary application to economics and political science.

ECON 475 INTEGER & COMB. OPTIMIZATION (3)**Integer and Combinatorial Optimization**

Modeling and solving optimization problems with discrete components, graphs and networks; network flow problems; minimum spanning trees; basic polyhedral theory; the knapsack problem; the plant location problem; the set packing problem; computational complexity, branch and bound; cutting planes; Lagrangian relaxation and Bender's decomposition. Also offered as CAAM 475. Prerequisite(s): CAAM 471.

ECON 477 MATHEMATICAL ECONOMICS (3)**Mathematical Structure of Economic Theory**

This course acquaints students with the optimization techniques and other advanced tools used in modern economic theory. It concentrates on individual optimization. Two person zero sum games are discussed including their connection to duality in linear programming. We proceed to study elements of topology, convexity and separation. The use of separation and fixed point theorems to prove equilibrium existence is demonstrated, followed by the use of calculus for constrained optimization. The last part of the course focuses on dynamic optimization (dynamic programming, calculus of variation and optimal control). Mastering of technical skills, such as multivariable analysis and basic linear algebra, and interest in learning the logic behind mathematical statements are essential to succeed in the course. Prerequisite(s): ECON 211, MATH 212 or 221 and CAAM 335 or MATH 335.

ECON 480 ENVIRONMENTAL ECONOMICS (3)**Environmental and Energy Economics**

The economic theories of externalities and common property resources are used to analyze environmental problems. Regulation, taxes and subsidies, transferable pollution rights and legal solutions to environmental problems are evaluated. Environmental and other aspects of alternative energy sources are considered and the pricing of depletable energy resources is analyzed. Not offered every year. Prerequisite(s): ECON 211.

ECON 481 HEALTH ECONOMICS (3)**Health Economics**

Study of determinants of health, including behavioral, economic and social factors and access to health care. Analysis of the medical care industry, production, cost, demand and supply factors. Effects of regulation and methods of payment. Prerequisite(s): ECON 211.

ECON 482 DISTRIBUTIVE JUSTICE (3)**Distributive Justice: A Microeconomic Approach**

The microeconomic approach to fair division seeks to combine efficiency, fairness and incentive-compatibility in allocation problems involving trade and production. The course focuses on: the simple proportionality and equality principles; competitive trade and the No Envy test; the Stand Alone test and the cooperative game model; the Shapely value. The welfarist model of collective utility functions captures competing theories of the social contract such as utilitarianism and egalitarianism. The social choice model of preference aggregation and voting rules formalizes democratic decision-making and uncovers some of its limits in the impossibility results of Arrow and Gibbard-Satterthwaite. Not offered every year. Prerequisite(s): ECON 211 and 370 or permission of the instructor.

ECON 483 PUBLIC FINANCE: TAX POLICY (3)**Public Finance: Tax Policy**

Analysis of tax policy, primarily at the federal level; emphasizes efficiency and equity issues and evaluation of tax reform proposals. Prerequisite(s): ECON 211, 370.

ECON 484 PUBLIC FINANCE EXPENDITURE (3)**Public Expenditure Theory and Social Insurance**

Public goods theory including non-rival and congestible public facilities, theory of local public goods including the economics of education. The problem of preference revelation and the fundamentals of benefit-cost analysis. Analysis of the effects of social security, old age retirement, and the role of government in financing healthcare — Medicare and Medicaid. Not offered every year. Prerequisite(s): ECON 211.

(F) = Fall; (S) = Spring

ECON 485 CONTEMPORARY ECONOMIC ISSUES (3)**Contemporary Economic Issues**

Analysis of urgent and significant economic problems, with emphasis on the evaluation of policy remedies. Content will vary from year to year. Not offered every year.

ECON 486 CONTEMPORARY ECONOMIC ISSUES (3)**Contemporary Economic Issues**

Analysis of urgent and significant economic problems, with emphasis on the evaluation of policy remedies. Content varies from year to year. Not offered every year.

ECON 495 SENIOR SEMINAR (3)**Senior Seminar**

Comprehensive analysis of economic issues related to a specific topic. Content will vary year to year. Not offered every year.

ECON 496 SENIOR SEMINAR (3)**Senior Seminar**

Comprehensive analysis of economic issues related too a specific topic. Content will vary year to year. Not offered every year.

ECON 501 MICROECONOMIC THEORY I (5)**Microeconomic Theory I**

Theory of the firm, the theory of consumer behavior, and partial equilibrium analysis.

ECON 502 MACROECON/MONETARY THEORY I (5)**Macroeconomic/Monetary Theory I**

Macroeconomic theory of output, consumption, investment, interest rates, inflation and employment.

ECON 504 ADVANCED ECONOMIC STATISTICS (5)**Advanced Economic Statistics**

Statistical inference and the testing of hypotheses multiple and partial correlation analysis; analysis of variance and regression. Also offered as STAT 604.

ECON 505 MACROECON/MONETARY THEORY II (5)**Macroeconomic/Monetary Theory II**

More detailed discussion of selective Macroeconomic and Monetary topics.

ECON 506 TOPICS:MACROECON/MONETARY THRY (5)**Topics In Macroeconomics/Monetary Theory**

Discussion of selected topics of current interest. Not offered every year.

ECON 507 MATHEMATICAL ECONOMICS I (5)**Mathematical Economics I**

Theory of household, firm; activity analysis; set theory, matrix algebra, vector calculus, metric spaces, separation theory, constrained optimization.

ECON 508 MICROECONOMIC THEORY II (5)**Microeconomic Theory II**

Continuation of Economics 507. Set theoretic approach to general equilibrium; aggregate linear and nonlinear production models; existence, stability, optimality.

ECON 509 MICROECONOMICS III (5)**Microeconomics III**

Social choice and preference aggregation. Cardinal welfarism Bargaining: axiomatic and strategic models. Cooperative games: core stability and coalition formation, Shapley value, cost and surplus sharing, Mechanism design: dominant strategy, strategy-proof voting, fair division, and cost sharing; implementation in Nash, Strong, and Bayesian Equilibrium. Prerequisite(s): ECON 501, 508.

ECON 510 ECONOMETRICS I (5)**Econometrics I**

Estimation and inference in single equation regression models, multicollinearity, autocorrelated and heteroskedastic disturbances, distributed lags, asymptotic theory, and maximum likelihood techniques. Emphasis is placed on the ability to analyze critically the literature. Also offered as STAT 610. Prerequisite(s): ECON 504.

ECON 511 ECONOMETRICS II (5)**Econometrics II**

Topics in linear and nonlinear simultaneous equations estimation, including qualitative and categorical dependent variables models and duration analysis. Applied exercises use SAS and the Wharton Quarterly Econometric Model. Also offered as STAT 611. Prerequisite(s): ECON 510.

(#) = credit hours per semester

ECON 512 INTERNATIONAL TRADE THEORY (5)**International Trade Theory**

Exploration of classical, neoclassical, and modern trade theory. Includes welfare aspects of trade such as the theory of commercial policy, with emphasis on applications. Not offered every year.

ECON 514 INDUST'L ORGANIZATION&CONTROL (5)**Industrial Organization and Control**

Industrial markets and public policy. Not offered every year.

ECON 515 LABOR ECONOMICS (5)**Labor Economics**

Exploration of the economics of the labor market and the economic implications of trade unions, with emphasis on major public policy issues. Not offered every year.

ECON 518 INTERNATIONAL MACROECONOMICS (5)**International Macroeconomics**

Effects of fiscal and monetary policies on exchange rates and the current account and balance of payments. Includes exchange market efficiency, exchange rates and prices, LDC debt, and policy coordination. Not offered every year.

ECON 519 ECONOMIC GROWTH & DEVELOPMENT (5)**Economic Growth and Development**

Analysis of theory and policy questions relating to the level and rate of economic development. Not offered every year.

ECON 521 PUBLIC FINANCE I (5)**Public Finance I**

Theory of public goods and externalities, political mechanisms and public choice, theory of local public goods, cost-benefit analysis and project evaluation issues of income redistribution.

ECON 522 PUBLIC FINANCE II (5)**Public Finance II**

Study of the effects of taxation on individual and firm behavior, general equilibrium tax incidence analysis, optimal taxation theory, optimal implementation of tax reform, analysis of comprehensive income, and consumption taxes.

ECON 523 DYNAMIC OPTIMIZATION (5)**Dynamic Optimization**

Study of dynamic optimization in discrete and continuous time. Not offered every year.

ECON 565 HEALTH ECONOMICS (5)**Health Economics**

Study of economic aspects of health. Includes production, cost, demand and supply factors; methods of payment and effects of regulation. Not offered every year.

ECON 577 TOPICS IN ECONOMIC THEORY I (5)**Topics in Economic Theory I**

Discussion of topics in advanced economic theory. Not offered every year. May repeat for credit.

ECON 578 TOPICS IN ECONOMIC THEORY II (5)**Topics in Economic Theory II**

Discussion topics in advanced economic theory. Not offered every year. May repeat for credit.

ECON 579 TOPICS IN ECONOMETRICS (5)**Topics in Econometrics**

Discussion of selected topics in advanced econometrics. Not offered every year. May repeat for credit. Prerequisite(s): ECON 511.

ECON 592 TOP-POLICY AND APPL'D ECON (5)**Topics in Policy and Applied Economics**

Discussion of selected topics and applied economics. Not offered every year. May repeat for credit.

ECON 593 WORKSHOP IN ECONOMICS (5)**Workshop in Microeconomics**

Seminars on advanced topics in macroeconomics, microeconomics, econometrics and applied microeconomic theory, presented through guest lectures by leading researchers. Open to graduate students only. Includes preparation of a research paper over the course of the year and its presentation in the workshop. May repeat for credit.

ECON 594 WORKSHOP IN ECONOMICS I (5)**Workshop in Economics I**

Continuation of ECON 593. Course may be repeated for credit.

(F) = Fall; (S) = Spring

ECON 595 WORKSHOP IN ECONOMICS II (5)**Workshop in Economics II**

This is the second year continuation of ECON 593-594.

ECON 597 READINGS IN ADVANCED TOPICS (5)**Readings in Advanced Topics**

Not offered every year.

ECON 598 READINGS IN ADVANCED TOPICS (5)**Readings in Advanced Topics**

Not offered every year.

ECON 800 GRADUATE RESEARCH (HOURS VARIABLE)**Graduate Research****EDUC (EDUCATION)****School of Humanities/Education****EDUC 201 CONT ISSUES IN EDUCATION (3)****Contemporary Issues In Education**

Exploration of current issues and controversies in education through research and primary experience. Requires a minimum of 14 hours of service or experience in K-12 schools, to be arranged individually. Directed to all students interested in issues of K-12 education, and recommended for those interested in entering the teacher preparation program. Instructor(s): *Radigan*

EDUC 301 PHILO, HIST & SOCL FOUND EDUC (3)**Philosophical, Historical, and Social Foundations of Education**

Analysis of events and ideas that have shaped the philosophy and practice of American schools today. Requires at least 15 hours of observation in secondary schools. May be required for students earning teacher certification, but also appropriate for all students interested in the influences and stresses that have created a unique educational system in our culturally diverse country. Required for certification unless EDUC 330 is substituted. Enrollment limited to students with junior status and higher. Instructor(s): *Coppola*

EDUC 305 EDUCATIONAL PSYCHOLOGY (3)**Educational Psychology**

Formerly EDUC 312. The goal of this course is to introduce students to a psychological understanding of teaching and learning through an overview of principles, issues, and related research in educational psychology. The course will examine theories of learning, complex cognitive processes, cognitive and emotional development, motivation, and the application of these constructs of effective instruction, the design of optimum learning environments, assessment of student learning, and teaching in diverse classrooms. It is a general overview of the field and requires no prior preparation. Required for certification. Enrollment limited to students with junior status and higher. Limited to 25. Instructor(s): *Norcross*

EDUC 310 INTRO SPECIAL EDUCATION (3)**Introduction to Special Education**

Introduction to special education with emphasis on various types of students with exceptionalities, ranging from visible to invisible; gifted students; pertinent legislation in the field; social issues; and educational approaches. Recommended for certification. Instructor(s): *Ashmore*

EDUC 315 ADOLESCENT DEVELOPMENT (3)**Adolescent Development**

The purpose of this course is to introduce students to basic theories of adolescent development and cognition. The course will examine principles and concepts in the areas of physical, emotional and psychological development, identity formation, sexuality, and family and peer relations. Other 'hot topics' such as substance abuse, eating disorders, and teenagers and the media will also be examined. Instructor(s): *Norcross*

EDUC 330 THE AMERICAN HIGH SCHOOL (3)**The American High School**

Survey of the background, purposes, and organization of modern secondary schools and their students and curricula. Includes the policy and administration of secondary schools as well as introductory educational research. 15 hours of observation in schools required. Required for certification unless EDUC 301 is substituted. Enrollment limited to students with junior status or higher. Instructor(s): *McNeil*

(#) = credit hours per semester

EDUC 335 URBAN ED:ISSUES,POLICY&PRACTIC (3)**Urban Education: Issues, Policy, and Practice**

Major issues facing urban education, including poverty, the implications of racial and ethnic diversity for educational institutions, and strategies for improving academic achievement in urban schools. We will examine sociological, political, cultural and educational research and theory, as well as explore strategies for improvement of urban education at the classroom, school and policy levels. Recommended for certification. Instructor(s): *Coppola*

EDUC 340 COMPUTERS IN EDUCATION (3)**Computers In Education**

Formerly EDUC 367. Technology is and will continue to be deeply involved in the education process. In this course, students will investigate and use computer applications to enhance classroom teaching and facilitate administrative tasks. Additionally, the Internet will be utilized as a teacher and student resource. Recommended for certification. Instructor(s): *White*

EDUC 410 THEORY AND METHODS: ART (HOURS VARIABLE)**Theory And Methods: Art**

Study of methods for putting theory into practice in the classroom. Includes multiple methods for educating students in our diverse society, reflection on, and practice of the skills of teaching applicable to the discipline. Required for certification. Prerequisite(s): Completion of or concurrent enrollment in EDUC 301/501 or EDUC 330/530 and consent of the instructor. Instructor(s): *Heckelman*

EDUC 411 THEORY AND METHODS: ENGLISH (HOURS VARIABLE)**Theory and Methods: English**

Study of methods for putting theory into practice in the classroom. Includes multiple methods for educating students in our diverse society, reflection on, and practice of the skills of teaching applicable to the discipline. Required for certification. Prerequisite(s): Completion of or concurrent enrollment in EDUC 301/501 or EDUC 330/530 and consent of the instructor. Instructor(s): *Heckelman*

EDUC 412 THRY AND MTHDS: FOREIGN LANGUAGE (HOURS VARIABLE)**Theory and Methods: Foreign Language**

Study of methods for putting theory into practice in the classroom. Includes multiple methods for educating students in our diverse society, reflection on, and practice of the skills of teaching applicable to the discipline. Required for certification. Prerequisite(s): Completion of or current enrollment in EDUC 301/501 or EDUC 330/530 and consent of the instructor. Instructor(s): *Heckelman*

EDUC 413 THRY AND MTHDS:MATHEMATICS (HOURS VARIABLE)**Theory and Methods: Mathematics**

Study of methods for putting theory into practice in the classroom. Includes multiple methods for educating students in our diverse society, reflection on, and practice of the skills of teaching applicable to the discipline. Required for certification. Prerequisite(s): Completion of or current enrollment in EDUC 301/501 or EDUC 330/530 and consent of the instructor. Instructor(s): *Heckelman*

EDUC 414 THRY & MTHDS: PHYSICAL EDUCATION (HOURS VARIABLE)**Theory and Methods: Physical Education**

Study of methods for putting theory into practice in the classroom. Includes multiple methods for educating students in our diverse society, reflection on, and practice of the skills of teaching applicable to the discipline. Required for certification. Prerequisite(s): Completion of or concurrent enrollment in EDUC 301/501 or EDUC 330/530 and consent of the instructor. Instructor(s): *Heckelman*

EDUC 415 THEORY AND METHODS: SCIENCE (HOURS VARIABLE)**Theory and Methods: Science**

Study of methods for putting theory into practice in the classroom. Includes multiple methods for educating students in our diverse society, reflection on, and practice of the skills of teaching applicable to the discipline. Required for certification. Prerequisite(s): Completion of or concurrent enrollment in EDUC 301/501 or EDUC 330/530 and consent of the instructor. Instructor(s): *Heckelman*

EDUC 416 THRY AND MTHDS:SOCIAL STUDIES (HOURS VARIABLE)**Theory and Methods: Social Studies**

Study of methods for putting theory into practice in the classroom. Includes multiple methods for educating students in our diverse society, reflection on, and practice of the skills of teaching applicable to the discipline. Required for certification. Prerequisite(s): Completion of or concurrent enrollment in EDUC 301/501 or EDUC 330/530 and consent of the instructor. Instructor(s): *Heckelman*

(F) = Fall; (S) = Spring

EDUC 420 CURRICULUM DEVELOPMENT (3)**Curriculum Development**

Integration of theory with practice as students observe a mentor teacher, identify issues of developing and implementing curriculum with a diverse student body, and create curriculum for the Summer School for Grades 8 through 12. Students must be admitted to the Teacher Preparation Program and committed to student teaching in Summer School. Required for certification. Prerequisite: EDUC 301/501 or EDUC 330/530 and consent of instructor. Instructor(s): *Heckelman*

EDUC 440 SUPRV TEACH:SUMMER SCHOOL (3)**Supervised Teaching: Summer School**

Field-based practicum for secondary teachers, with accompanying seminar. Required for certification. Prerequisite(s): EDUC 420 Instructor(s): *Heckelman*

EDUC 489 ADOLESCENT LITERATURE (3)**Adolescent Literature**

Cultural, literary, and developmental issues in literature written to engage middle and high school students. Recommended for certification. Instructor(s): *Heckelman*

EDUC 490 PORTFOLIO DEVELOPMENT (1)**Portfolio Development**

Development of a portfolio demonstrating teaching strengths which is required for teacher certification during the last summer of student teaching. Recommended for teacher certification. Prerequisite(s): Consent of the instructor. Instructor(s): *Heckelman*

EDUC 491 INDEPENDENT STUDY AND RESEARCH (HOURS VARIABLE)**Independent Study and Research**

Prerequisite(s): Consent of instructor. Instructor(s): *Staff*

EDUC 501 PHILO, HIST & SOCL FOUND OF EDUC (3)**Philosophical, Historical, and Social Foundations of Education**

Graduate level equivalent of EDUC 301. Instructor(s): *Coppola*

EDUC 505 EDUCATIONAL PSYCHOLOGY (3)**Educational Psychology**

Graduate level equivalent of EDUC 305. Instructor(s): *Norcross*

EDUC 530 THE AMERICAN HIGH SCHOOL (3)**The American High School**

Graduate level equivalent of EDUC 330. Instructor(s): *McNeil*

EDUC 540 INTERNSHIP (3)**Internship**

Field practice for secondary teachers, with accompanying seminar. Prerequisite(s): Successful completion of EDUC 440 and consent of the instructor. Instructor(s): *Heckelman*

EDUC 588 TCHNG EARTH AND SPACE SCIENCE (3)**Teaching Earth and Space Science**

Overview of the Earth and the solar system, their structure, evolution and dynamics. Fundamentals of Earth and Space Science topics as taught in 6th grade. Includes mathematics of solar system motion at level of algebra and simple trigonometry (e.g. ellipses, Kepler's laws). Includes teaching on the use of earth and solar system software and weather station software. Hands-on classroom activities aligned with TEKS. This course is designed for science and math teachers (grades 6-12), but is also available for a general audience. One hour of lab per week. Also offered as ASTR 402.

EDUC 589 ASTRONOMY FOR TEACHERS (3)**Astronomy for Teachers**

Learn how to teach astronomy concepts as specified by the state of Texas. This class provides the most basic concepts and shows what is necessary for students to master them, following the development specified in the TEKS. Lab activities suitable for replication in K-9 classrooms and as local field trip experience. Also offered as ASTR 403.

EDUC 591 INDEPENDENT STUDY AND RESEARCH (HOURS VARIABLE)**Independent Study and Research**

Graduate equivalent of EDUC 491. Instructor(s): *Staff*

(#) = credit hours per semester

EDUC 592 SEMINAR IN SCIENCE FOUNDATIONS (2)**Seminar In Science Foundations**

Seminar with a team of university faculty and community-based scientists (in fields such as medicine, space, energy, and the environment) to increase understanding of scientific principles as they are applied in the scientific community of Houston and as they relate to secondary school science.

EDUC 593 PRACTICUM IN TEACHING SCIENCE (2)**Practicum In Teaching Science**

Students will develop and practice interactive teaching strategies to engage students in a process of observation and discovery fundamental to the sciences.

EDUC 596 FLD-BASED STDY TEACH&LRNG (HOURS VARIABLE)**Field-Based Studies In Teaching and Learning**

Study of field-based ethnographic research on teaching and learning. Includes seminar, independent research projects, ethnographic research methods, and directed case studies. Open to upperclassmen and graduate students, particularly those in education, sociology, anthropology, and psychology. Offered as needed. Enrollment limited to 15. Instructor(s): *McNeil*

ELEC (ELECTRICAL AND COMP. ENGINEERING)**School of Engineering/Electrical and Computer Engineer****ELEC 201 INTRO TO ENGINEERING DESIGN (4)****Intro to Engineering Design**

This is a hands on introduction to engineering design. Using skills developed in the course, teams of students will design and construct a functional robot, and program this robot to perform simple tasks. The course is completely self-contained, assumes no Prerequisite(s), and is intended for both engineering majors and non-majors. Instructor(s): *Young*

ELEC 220 FUND COMPUTER ENGINEERING (4)**Fundamentals of Computer Engineering**

An overview of fundamental topics in computer engineering, including bits, logic, state machines, instruction sets, assembly language, linkage conventions, pipeline, storage, hierarchies, interrupts, input/output, and networking. Intended for ECE/CS majors. Instructor(s): *Pai*

ELEC 226 MICROCONTROLLER AND EMBEDDED (3)**Microcontroller and Embedded Systems Laboratory**

Basic introduction to microcontroller-based embedded systems development. Includes structures laboratory exercises in: assembly programming, C language programming, peripheral interfacing, interrupt management, structured programming, task scheduling, simple digital signal processing (DSP), and other related topics. This course assumes no Prerequisite(s) and is primarily intended for first and second year engineering students. Instructor(s): *Frantz*

ELEC 241 FUND ELECTRICAL ENGINEERING (4)**Fundamentals of Electrical Engineering I**

The creation, manipulation, transmission, and reception of information by electronic means, elementary signal theory; time and frequency-domain analysis; sampling theorem. Digital information theory; digital transmission of analog signals; error-correcting codes. Laboratory demonstrating the principles of information management by electronic means. Instructor(s): *Orchard*

ELEC 242 FUND OF ELEC ENGINEERING II (4)**Fundamentals of Electrical Engineering II**

Formulation and solution of equations describing electric circuits and electromechanical systems. Behavior of dynamic systems in the time and frequency domains. Basic electronic devices and circuits, including diodes, transistors, optoelectronics, gates, and amplifiers. Introduction to feedback control and digital systems. Prerequisite(s): ELEC 241 Instructor(s): *Wise*

ELEC 243 INTRODUCTION TO ELECTRONICS (4)**Introduction to Electronics**

Introduction to analog and digital circuit analysis and design. Basic circuit elements, transistors, OP Amps, digital devices and systems. Intended for non-majors. Prerequisite(s): MATH 101 and 102. Instructor(s): *Wilson*

(F) = Fall; (S) = Spring

ELEC 261 INTRO TO WAVES AND PHOTONICS (3)**Introduction to Waves and Photonics**

Introduction to the concepts of waves and oscillatory motion with a particular focus on electromagnetic waves and their interaction with dielectric materials, and on the use of these ideas in the fields of optical fiber communications laser design, non-linear optics, and Fourier optics. Instructor(s): *Mittleman*

ELEC 301 INTRODUCTION TO SIGNALS (3)**Introduction to Signals**

Analytical framework for analyzing signals and systems. Time and frequency domain analysis of continuous time signals and systems, solution of differential equations, convolution, and the Laplace transform. Fourier analysis. Prerequisite(s): ELEC 241 Corequisite(s): CAAM 335, MATH 355, or equivalent linear algebra course. Instructor(s): *Baraniuk*

ELEC 302 INTRODUCTION TO SYSTEMS (3)**Introduction to Systems**

A study of linear dynamical systems based on state-space representation. Includes the structural properties of systems such as controllability and observability. About one third of the course is devoted to the study of linear algebraic concepts, like range, null space, eigenvalues diagonalizability. Applications to control problems. Prerequisite(s): ELEC 301 Co-requisite(s): ELEC 303 Instructor(s): *Antoulas*

ELEC 303 SYSTEMS LAB (2)**Systems Lab**

To be taken concurrently with ELEC 302.

ELEC 305 INTRO PHYSICAL ELECTRONICS (3)**Introduction to Physical Electronics**

Study of transmission lines and pulse propagation: basic semiconductor devices; waves; and lasers. Instructor(s): *Wilson*

ELEC 306 ELECTRO FIELDS AND DEVICES (3)**Electromagnetic Fields and Devices**

A course to introduce students to various electrical engineering aspects and devices based on electromagnetic field theory. Includes basic concepts of waveguides, resonators, optical fibers, waveguide devices, a survey of antennas, and a discussion of radar, lidar, and remote sensing principles. Prerequisite(s): ELEC 305 Instructor(s): *Tittel*

ELEC 322 APPLIED ALGORITHMS AND DATA (4)**Applied Algorithms and Data**

See COMP 314.

ELEC 326 DIGITAL LOGIC DESIGN (3)**Digital Logic Design**

Gates, flip-flops, combinational and sequential switching circuits, registers, logical and arithmetic operations, introduction to the Verilog hardware description language. Instructor(s): *Jump*

ELEC 327 IMPLEMENTATION OF DIG SYSTEMS (3)**Implementation of Digital Systems**

This course concerns the implementation of digital systems using the Verilog hardware description language. Lecture topics include Verilog test benches and timing simulations and techniques for implementing control units, data-flow units, pipelining and interrupts. The course also requires the completion of a significant project involving the implementation of a modern instruction set architecture. Prerequisite(s): ELEC 326 Instructor(s): *Jump, Mohanram*

ELEC 331 APPLIED PROBABILITY (3)**Applied Probability**

See STAT 331.

ELEC 342 ELECTRONIC CIRCUITS (4)**Electronic Circuits**

Models of diodes, bipolar and field effect transistors. Biasing methods, distortion analysis, two-port analysis, single-stage and multistage amplifiers, frequency domain characteristics, feedback, stability, and power amplifiers. Lab culminates in the design and testing of a low-distortion audio frequency power amplifier. Prerequisite(s): ELEC 242 Instructor(s): *Massey*

ELEC 361 ELEC MATERIALS AND QUANTUM DEVICES (3)**Electronic Materials and Quantum Devices**

This course provides the background in quantum mechanics and solid state physics necessary for further studies in device physics (ELEC 462) and quantum Electronics (ELEC 463). Prerequisite(s): PHYS 202 Instructor(s): *Kelly*

(#) = credit hours per semester

ELEC 381 FUND ELECTROPHYSIOLOGY (3)**Fundamentals of Electrophysiology**

An introduction to the electrophysiology of excitable cells, and the development of mathematical models of their electrochemical activity. Forms the basis for a better understanding of clinical recordings of heart, brain and muscular activity (ECG, EEG, and EMG, respectively). Prerequisite(s): Permission of instructor. Also offered as BIOE 381. Instructor(s): *Clark*

ELEC 383 BIOMED ENGINEER INSTRUMENTATION (3)**Biomedical Engineering Instrumentation and Analysis**

See BIOE 383.

ELEC 391 PROF ISSUES ELECT ENGINEERING (1)**Professional Issues In Electrical Engineering**

Issues related to engineering professional practice and other career choices for electrical engineering graduates. Topics will include intellectual property rights, engineering ethics, technical presentations, entrepreneurship, venture capitalism, career paths, and graduate study. Instructor(s): *Sinclair, Wilson*

ELEC 420 DESIGN AND ANALYSIS OF ALGORITHMS (3)**Design and Analysis of Algorithms**

See COMP 482.

ELEC 421 OPERATING SYSTEMS AND CONCURR PROGRAM (4)**Operating Systems and Concurrent Programs**

See COMP 421.

ELEC 422 VLSI DESIGN I (4)**VLSI Design I**

A study of VLSI technology and design. MOS devices, characteristics, and fabrication. Logic design and implementation. VLSI design methodology, circuit simulation, and verification. Course includes group design projects. Instructor(s): *Massoud*

ELEC 423 VLSI DESIGN II (2)**VLSI Design II**

Testing and evaluation of VLSI circuits designed in VLSI Design I, ELEC 422. Efficient test methodologies. Topics in computer aided design. Prerequisite(s): ELEC 422 Instructor(s): *Cavallaro*

ELEC 424 HIGH-SPEED EMBEDDED SYSTEM DESIGN (4)**High-Speed and Embedded Systems Design I**

The specification, design, and implementation of high-speed DSP and microcontroller-based systems, taking into account cost constraints available technology, and other factors. Includes instruction on high-speed design theory, hardware/software interface, and approaches to designing practical hardware systems. Major hardware design project required. Must complete ELEC 427 to receive credit for ELEC 424. Enrollment limited to 25. Instructor(s): *Frantz*

ELEC 425 COMPUTER SYSTEMS ARCHITECTURE (4)**Computer Systems Architecture**

Advanced uniprocessor system architecture. Advanced pipelining; dynamic scheduling, precise interrupt handling. Advanced techniques for exploiting instruction level parallelism; superscalar and VLIW architectures. Case studies of recent high-performance microprocessors. Vector and DSP processors. Memory system improvement-cache, virtual memory, and main memory enhancements. I/O performance enhancements. Introduction to parallel architectures. Instructor(s): *Fletcher*

ELEC 427 HIGH-SPEED EMBEDDED SYSTEM DESIGN (3)**High Speed and Embedded Systems Design II**

PERMISSION OF INSTRUCTOR REQUIRED. Continuation of ELEC 424. Includes testing and evaluation of printed circuit boards designed in preceding course. Includes instruction on programming embedded systems in C or assembly. Revision of design projects as needed. Prerequisite(s): ELEC 424 Instructor(s): *Frantz*

ELEC 428 COMPUTER SYSTEMS PERFORMANCE (4)**Computer Systems Performance**

Analytical models of computer systems. Queueing theory and Markov chains. Queueing networks. Simulation and analysis of simulation results. Operational analysis. Course will include programming projects in C or C++. Prerequisite(s): ELEC 331 or permission of instructor. Instructor(s): *Sinclair*

(F) = Fall; (S) = Spring

ELEC 429 INTRO TO COMPUTER NETWORKS (3)**Introduction to Computer Networks**

Network architectures and basic protocols. Routing flow control. Access methods. Transmission media, error management. Network performance. The course will cover several types of networks, including CSMA/CD, token ring, and ATM. Also offered as COMP 429. Instructor(s): *Knightly*

ELEC 430 COMMUNICATION THEORY AND SYSTEMS (3)**Communication Theory and Systems**

Course in digital communications, designed to prepare students for engineering work in high-tech industries and for graduate work in communications, signal processing, and computer systems. Covers basic concepts and useful tools for design and performance analysis of transmitters and receivers in the physical layer of a communication system. Prerequisite(s): ELEC 331 Instructor(s): *Aazhang*

ELEC 431 DIGITAL SIGNAL PROCESSING (3)**Digital Signal Processing**

Analysis of discrete-time signals and systems. Includes filter design and implementation, an introduction to least squares and statistical signal processing, and applications in speech and image processing. Prerequisite(s): ELEC 301 Instructor(s): *Johnson*

ELEC 433 ARCH FOR WIRELESS COMMUNICATIONS (4)**Architectures for Wireless Communications**

This is a seminar course in which students will embark upon a detailed study of the major functional blocks of end-to-end wireless communications systems. Students will work in groups and be required to make weekly presentations on a specific functional element. A major group hardware or software design project will be required. Enrollment limited to 15. Instructor(s): *Frantz*

ELEC 434 DIGITAL SIGNAL PROCESSING LAB (3)**Digital Signal Processing Laboratory**

Design and implementation of real-time digital signal processing (DSP) systems using a DSP microprocessor. Includes several structured laboratory exercises, such as sampling, digital filtering, and FFT, using both fixed-point and floating-point DSP processors. Requires an extensive DSP project of the student's choice. Instructor(s): *Choi*

ELEC 435 ELECTROMECH DEVICES AND SYSTEMS (3)**Electromechanical Devices and Systems**

Introduction to the physical and engineering aspects of electromechanical sensors and actuators, including underlying physical phenomena, practical devices, electrical and mechanical interfacing, and control of electromechanical systems. Also offered as MECH 435. Instructor(s): *Wise*

ELEC 436 FUNDAMENTALS OF CONTROL SYST (3)**Fundamentals of Control Systems**

See MECH 420.

ELEC 437 MULTITIER WIRELESS NETWORKS (1)**Multitier Wireless Networks**

Topics in multitier wireless networks. Lectures from a range of faculty from ECE and CS. Focused team projects. Appropriate for both undergraduate and graduate students of all levels. Instructor(s): *Baraniuk*

ELEC 439 DIGITAL IMAGE PROCESSING (3)**Digital Image Processing**

Modern techniques for image analysis, processing, and enhancement: Two dimensional system and transform theory; sampling; linear and non-linear filtering; feature extraction; compression and coding; imaging systems. Instructor(s): *Orchard*

ELEC 440 ARTIFICIAL INTELLIGENCE (4)**Artificial Intelligence**

See COMP 440.

ELEC 442 ADV ELECTRONIC CIRCUITS (4)**Advanced Electronic Circuits**

An in-depth extension of material covered in ELEC 342 such as discrete, de-coupled, multistage op-amps, wide-band amplifiers, principles of feedback, feed-forward, automatic gain control, active filtering, the design of data converters and analog multipliers/dividers. Prerequisite(s): ELEC 342 Instructor(s): *Massey*

(#) = credit hours per semester

ELEC 443 POWER ELECTRONIC CIRCUITS (4)**Power Electronic Circuits**

Minimization of power consumption in electronic circuits with the required system performance. Design of high-efficiency power amplifiers. Electronic circuits used in power systems, including the principles of phase-controlled rectification, high-frequency inversion, and DC-DC conversion, with emphasis on design and lab project. Prerequisite(s): ELEC 342. Instructor(s): *Massey*

ELEC 444 ELECTROMAG INTERFER/COMPATIBL (4)**Electromagnetic Interference/Compatibility**

Fundamental EMI/EMC principles, development of regulations and requirements, non-ideal and nonlinear behavior of components, radiated and conducted emissions and susceptibility, testing techniques to determine compliance, electrical/mechanical techniques to ensure compliance, modeling and electrostatic discharge. Lab is application of principles to analog and/or digital circuits. Instructor(s): *Massey*

ELEC 445 WIRELESS ELECTRONICS (4)**Wireless Electronics**

Fundamental radio frequency electronic principles; government regulations on noninterference, nonlinear and nonideal behavior of electronic components, positive and negative feedback including ac stability, basic dipole antenna theory, wireless receiver and transmitter architectures and circuits. The lab project is a transceiver design for maximum range while satisfying government regulations. Prerequisite(s): ELEC 342. Instructor(s): *Massey*

ELEC 446 MOBILE WIRELESS SERVICE PROJEC (3)**Mobile Wireless Services Project**

Design and implement a wireless mobile information system utilizing PocketPC hardware, Visual Studio .NET and .NET services to run over the Rice 802.11b wireless infrastructure. Students will be provided with PocketPCs, required software and access to a .NET server. Preference given to students who have experience with Visual Studio or have taken ELEC 694. Class limited to a maximum of 8 people (4 on clients and 4 on services). Permission of Instructor. Instructor(s): *Cutler*

ELEC 462 SEMICONDUCTOR DEVICES (4)**Semiconductor Devices**

Survey of physical principles and operational characteristics of semiconductor devices. Bipolar and MOS transistors. IC circuit fabrication. Instructor(s): *Wilson*

ELEC 463 LASERS AND PHOTONICS (3)**Lasers and Photonics**

Introduction to the physics and technology of lasers and related devices. The course consists of lectures, homework, and student presentations on particular topics. Prerequisite(s): PHYS 201 or ELEC 261. Instructor(s): *Young*

ELEC 465 PHYSICAL ELECTRONICS PRACTICUM (3)**Physical Electronics Practicum**

A laboratory course, with lecture, to introduce students to a variety of experimental techniques, methods, and instruments of current interest. The content will generally correspond to the ideas and concepts introduced in the Physical Electronics courses, ELEC 305, 306, 461, and 463, including: general optics; lasers and fiber optics; spectroscopy. Prerequisite(s): PHYS 201 or ELEC 261. Instructor(s): *Wilson*

ELEC 481 COMPUTATIONAL NEUROSCIENCE (3)**Computational Neuroscience**

An introduction to anatomy and physiology of the brain. Development of models of neurons and natural neural networks. Prerequisite(s): ELEC 381 or permission of instructor. Also offered as BIOE 481. Instructor(s): *Clark*

ELEC 482 PHYSIOLOGICAL CONTROL SYSTEMS (4)**Physiological Control Systems**

Nervous system control of biological systems using simulation methods, as well as techniques common to linear and nonlinear control theory. Examples from cardiovascular, respiratory, and visual systems. Also offered as BIOE 482. Prerequisite(s): ELEC 381 or permission of instructor. Instructor(s): *Clark*

ELEC 485 FUND MEDICAL IMAGING I (3)**Fundamentals of Medical Imaging I**

The course will introduce basic medical imaging modalities, such as x-ray, CT, and MRI, used to identify the anatomy of human organs, as well as other modalities, such as PET, SPECT, fMRI, and MEG, specifically developed to localize brain function. The course includes visits to clinical sites. Also offered as BIOE 485 and COMP 485. Instructor(s): *Mawlawi*

(F) = Fall; (S) = Spring

ELEC 486 FUND MEDICAL IMAGING II (3)**Fundamentals of Medical Imaging II**

Course focuses on Positron Emission Tomography (PET) physical principles, image formation, processing, and clinical applications and lays the foundations for understanding PET tracer kinetic modeling. A trip to MD Anderson's PET facility provides hands-on experience of PET imaging. Also offered as BIOE 486 and COMP 486.

Instructor(s): *Maulawi*

ELEC 490 ELEC ENGINEERING PROJECTS (HOURS VARIABLE)**Elec Engineering Projects**

Theoretical and experimental investigations under staff direction. May be repeated for a total of 6 credit hours.

Instructor(s): *Staff*

ELEC 491 SENIOR DESIGN PROJECT I (3)**Senior Design Project I**

A capstone design experience in electrical and computer engineering. This course provides an opportunity for students to apply knowledge and skills acquired in previous courses to the solution of a realistic engineering problem. Teams of students will specify, design, and build a system to meet a prescribed set of requirements. The topics covered in this course will include design methodology, effective teamwork, project management, documentation, and presentation skills. Must complete ELEC 492 to receive credit for ELEC 491. Instructor(s): *Wise*

ELEC 492 SENIOR DESIGN PROJECT II (4)**Senior Design Project II**

Continuation of ELEC 491 Instructor(s): *Wise*

ELEC 498 ROBOTICS (3)**Introduction to Robotics**

See MECH 498.

ELEC 501 APPROXIMATION DYNAMICAL SYSTEM (3)**Approximation of Dynamical Systems**

This course describes projection methods for model reduction that seek to replace scale systems (VLSI circuits, weather prediction models, and MEMS) with systems of computational complexity that the original dynamical system requires while still maintaining model fidelity. Instructor(s): *Antoulas*

ELEC 502 NEURAL NETWORKS AND INFO THEORY (3)**Neural Networks and Information Theory I**

Review of major Artificial Neural Network paradigms. Analytical discussion of supervised and unsupervised learning. Emphasis on state-of-the-art Hebbian (biologically most plausible) learning paradigms and their relation to information theoretical methods. Applications to data analysis such as pattern recognition, clustering, classification, blind source separation, non-linear PCA. More at <http://www.ece.rice.edu/~erzsebet/ANNcourse.html>. Also offered as COMP 502. Prerequisite(s): ELEC 430, 431, or equivalent or consent of instructor. Instructor(s): *Merenyi*

ELEC 507 NONLINEAR DYNAMIC SYSTEMS ANAL (3)**Nonlinear Dynamic Systems Analysis**

Analytical methods, including singular point and phase plane analysis, describing functions, stability analysis via Lyapunov functions; digital computer simulation methods; parameter estimation and sensitivity analysis is included. An introduction to the chaotic behavior of nonlinear dynamic systems is included. Also offered as MECH 507.

Instructor(s): *Clark*

ELEC 508 NONLINEAR SYSTEMS ANALYSIS II (3)**Nonlinear Systems Analysis II**

See MECH 508

ELEC 519 PARALLEL ALGORITHMS AND ARCH (3)**Parallel Algorithms and Architecture**

Parallel architectures: shared memory, VLSI, message-passing. Structure and relation between architectures. Parallel time, work, and efficiency. Parallel algorithms for fundamental computational problems and applications. Network routing. Also offered as COMP 583.

ELEC 520 DISTRIBUTED SYSTEMS (4)**Distributed Systems**

See COMP 520.

(#) = credit hours per semester

ELEC 521 HIGH SPEED INTEGRATED CIRCUITS (3)**Modeling and Design of High Speed Integrated Circuits**

This course gives an overview of the critical issues in the design of high performance VLSI circuits. This course focuses on the modeling and design automation of high performance CMOS circuits. The course covers scaling trends in CMOS technologies, interconnect modeling, power modeling, noise in digital CMOS circuits, high-performance CMOS design methodologies, model order reduction techniques, high performance clock distribution design, electro migration effects and power distribution. Instructor(s): *Massoud*

ELEC 522 ADV VLSI DESIGN (3)**Adv VLSI Design**

Design and analysis of algorithm-specific VLSI processor architectures. Topics include the implementation of pipelined and systolic processor arrays. Techniques for mapping numerical algorithms onto custom processor arrays. Course includes design project using high-level VLSI synthesis tools. Prerequisite(s): ELEC 422, 423
Instructor(s): *Cavallaro*

ELEC 523 COMPUTER-AIDED DESIGN FOR VLSI (3)**Computer-Aided Design for VLSI**

Fundamental topics in computer-aided design for VLSI-Logic synthesis and formal verification, timing analysis and optimization, technology mapping, logic and fault simulation, testing, and physical design will be covered. Relevant topics in algorithms and data structures, generic programming, and the C++ standard template library will also be covered. Also offered as COMP 523. Instructor(s): *Mobanram*

ELEC 524 MOBILE AND WIRELESS NETWORKING (3)**Mobile and Wireless Networking**

See COMP 524.

ELEC 525 ADV MICROPROCESSOR ARCH (4)**Advanced Microprocessor Architecture**

See COMP 525.

ELEC 526 HIGH-PERFORMANCE COMPUTER ARCH (4)**High-Performance Computer Architecture**

Design of high performance computer systems, including shared-memory and message-passing multiprocessors and vector systems. Hardware and software techniques to tolerate and reduce memory and communication latency. Case studies and performance simulation of high-performance systems. Also offered as COMP 526. Prerequisite(s): ELEC/COMP 525 or permission of the instructor. Instructor(s): *Pai*

ELEC 527 ADV HIGH-SPEED&EMBEDDED SYSTEM (HOURS)**Advanced High-Speed and Embedded Systems Design**

Specification, design, and implementation of complex high-speed DSP and microcontroller-based systems, with an emphasis on mixed-signal and communications hardware. Includes instruction in advanced circuit design and analysis (analog, digital, and mixed-signal). Emphasis on good design practices. Major hardware design project required. Limited enrollment. Instructor(s): *Frantz*

ELEC 529 COMP NETWORKS: ARCH AND PROTOCOL (3)**Comp Networks: Arch and Protocol**

See COMP 529.

ELEC 530 DETECTION THEORY (3)**Detection Theory**

Classic and modern methods of optimal decisions in communications and signal processing. Continuous- and discrete-time methods. Gaussian and non-Gaussian problems. Instructor(s): *Johnson*

ELEC 531 STATISTICAL SIGNAL PROCESSING (3)**Statistical Signal Processing**

Statistical models for single- and multi-channel signals. Optimal detection and estimation solutions for Gaussian and non-Gaussian environments. Prerequisite(s): ELEC 431 Co-requisite(s): ELEC 533 Instructor(s): *Staff*

ELEC 532 WAVELET AND SPECTRAL ANALYSIS (3)**Wavelet and Spectral Analysis**

Classical and modern techniques for characterizing the frequency content of signals. Review of random processes and linear algebra; fourier transform-based methods and the periodogram; parametric techniques, including autoregressive (AR) and autoregressive moving average (ARMA) modeling; nonparametric techniques, including minimum variance and eigenspace methods, and time-varying spectral analysis. Also offered as STAT 586. Instructor(s): *Baraniuk*

(F) = Fall; (S) = Spring

ELEC 533 INTRO RANDOM PROCESS & APPL (3)**Introduction Random Processes and Application**

Review of basic probability; Sequence of random variables; Random vectors and estimation; Basic concepts of random processes; Random processes in linear systems, expansion of random processes; Wiener filtering; Spectral representation of random processes; White-noise integrals. Also offered as CAAM 583 and STAT 583.

ELEC 534 WIRELESS COMMUNICATIONS (3)**Wireless Communications**

This is a graduate course on wireless and mobile communication systems, with an emphasis on understanding the unique characteristics of these systems--their analysis and design. Topics include: cellular principles, mobile radio propagation and path loss, characterization of multipath fading channels, modulation and equalization techniques for mobile radio systems, multiple (media) access, Code Division Multiple Access (CDMA) system design, and cellular system capacity. Instructor(s): *Aazhang*

ELEC 535 INFORMATION AND CODING THEORY (3)**Information and Coding Theory**

Introduction to information theory concepts; basic theorems of channel coding and source coding with a fidelity criterion. Techniques of channel coding, parity check codes, introduction to algebraic coding theory, introduction to convolutional codes. Variable-length source coding. Prerequisite(s): ELEC 331 Instructor(s): *Choi*

ELEC 536 SELECT TOPICS CONTROL THEORY (3)**Selected Topics in Control Theory**

The course objective is to design feedback control systems that meet performance specifications in the presence of uncertainties such as disturbances, measurement noise, and unmolded plant dynamics.

ELEC 537 DSIGN & CONTROL COMPUTER NETWORKS (3)**Design and Control of Computer Networks**

Graduate-level introduction to fundamental concepts for the design and control of computer networks. Topics include resource allocation, routing, traffic modeling, congestion control, service disciplines, and multicasting. Concepts are applied to state-of-the-art systems and protocols such as current and future Internet architectures. Also offered as MECH 537. Instructor(s): *Knightly*

ELEC 538 ADV TOP COMPUTER NETWORKING (3)**Advanced Topics in Computer Networking**

Survey of research issues in computer networking including quality of service, wireless networking, scheduling, performance modeling, network control algorithms, and novel architectures. Instructor(s): *Knightly*

ELEC 539 DIGITAL IMAGE PROCESSING (3)**Digital Image Processing**

Modern techniques for image analysis, processing, and enhancement: Two dimensional system and transform theory; sampling; linear and non-linear filtering; feature extraction; compression and coding; imaging systems. Instructor(s): *Orchard*

ELEC 540 SOURCE CODING AND COMPRESSION (3)**Source Coding and Compression**

Review of information theory, scalar quantization, vector quantization, quantizer Design Algorithms, Entropy coding, transform coding, rate-distortion optimization application to image and video coding, wavelet and multi-resolution compression algorithms. Instructor(s): *Orchard*

ELEC 541 ERROR CORRECTING CODES (3)**Error Correcting Codes**

Introductory course on error correcting codes. Topics covered include linear block codes, convolutional codes, turbo codes and space-time codes.

ELEC 542 DIGITAL AUDIO AND VIDEO SYSTEMS (3)**Digital Audio and Video Systems Design**

This course covers practical audio and video system design techniques and DSP architectures for implementing real time video and audio algorithms. Topics: A&V circuit and system design fundamentals, digital audio amplifiers, digital audio algorithms, DSP architectures, NTSC and HDTV video systems, MPEG video algorithms, HDTV receiver design and personal video recorder design. Prerequisite(s): ELEC 302; ELEC 431 preferred. Instructor(s): *Tran*

ELEC 546 MOBILE WIRELESS SERVICE PROJEC (3)**Mobile Wireless Service Projects II**

Design and implement a wireless mobile information system utilizing PocketPC hardware, Visual Studio .NET and .NET services to run over the Rice 802.11b wireless infrastructure. Students will be provided with PocketPCs, required software and access to a .NET server. Preference given to students who have experience with Visual Studio or have taken ELEC 694. Class will be limited to a maximum of 8 people (4 on clients and 4 on services). Prerequisite(s): Permission of instructor. Instructor(s): *Cutler*

ELEC 560 INTEGRATED AND FIBER OPTICS (3)**Integrated and Fiber Optics**

A seminar course consisting of lectures, discussions of journal articles, and student presentations on topics in optical fiber propagation, including linear and nonlinear effects. Prerequisite(s): ELEC 306 Instructor(s): *Halas*

ELEC 561 TOP SEMICONDUCTOR MANUFACTURNG (3)**Topics in Semiconductor Manufacturing**

Advanced methods for simulation and control of the fabrication of modern integrated circuits. Quality and reliability assurance. Prerequisite(s): ELEC 462 Instructor(s): *Wilson*

ELEC 562 SUBMICROMETER AND NANOMETER TECHN (3)**Submicrometer and Nanometer Device Technology**

Surveys techniques to design, fabricate, and analyze submicron and nanometer structures with emphasis on applications in microelectronics, microphotonics, information storage, and nanotechnology. Instructor(s): *Kelly*

ELEC 563 INTRO TO SOLID STATE PHYSICS I (3)**Introduction to Solid State Physics I**

Introduction to the fundamental concepts of crystalline solids, including the Drude theory of metals, crystal structures, Bloch's theorem, band structure, effective mass approximation, phonons, plasmons, excitons, and polaritons. Also offered as PHYS 563. Instructor(s): *Kono*

ELEC 564 SOLID-STATE PHYSICS II (3)**Solid-state Physics II**

See PHYS 564.

ELEC 565 SEMICONDUCTOR NANOSTRUCTURES (3)**Topics in Semiconductor Nanostructures**

Lectures/discussions on advanced topics in semiconductor nanostructures. The topics include: the quantum hall effect; excitons and polaritons; Bose-Einstein condensation; mesoscopic phenomena; spectroscopy of wires and dots; Bloch oscillations; ultrafast/nonlinear optics; spintronics; and quantum information processing. Students read original research papers and review articles, and present seminars on assigned topics. Instructor(s): *Kono*

ELEC 566 PHYSICAL ELECTRONICS PROJECTS (3)**Physical Electronics Projects**

Includes standard experiments, development of new experiments, and special projects undertaken in collaboration with a faculty member. Permission of instructor required. Instructor(s): *Staff*

ELEC 568 LASER SPECTROSCOPY (3)**Laser Spectroscopy**

Introduction to the theory and practice of laser spectroscopy as applied to atomic and molecular systems. The course covers fundamentals of spectroscopy, lasers and spectroscopic light sources, high resolution and time resolved laser chemistry, environmental science and medicine. Instructor(s): *Titel*

ELEC 569 ULTRAFAST OPTICAL PHENOMENA (3)**Ultrafast Optical Phenomena**

This course covers the generation, propagation, and measurement of short laser pulses, of duration less than one picosecond. Concepts include mode locking, the effects of dispersion, optical pulse amplification, and time-domain non-linear optical phenomena. Intended as an introduction to ultrafast phenomena for graduate students or advanced undergraduates; a basic understanding of electromagnetic waves and of quantum mechanics is assumed. Also offered as PHYS 569. Instructor(s): *Mittleman*

ELEC 580 ADV NEURONAL MODELING AND NETWORK (3)**Advanced Neuronal Modeling and Networks**

Emphasis on neuron models exhibiting pacing and bursting activity important in central pattern generation. Introduction to natural and artificial neural networks, as well as neuromorphic systems. Also offered as BIOE 580. Prerequisite(s): ELEC 381, 481 or permission of instructor. Instructor(s): *Clark*

(F) = Fall; (S) = Spring

ELEC 581 CARDIOPULMONARY DYNAMICS (3)**Cardiopulmonary Dynamics**

Mathematical modeling of the cardiovascular and respiratory systems, and their neural control. Integration of these system models into a human cardiopulmonary model capable of simulating measured data from functional tests. Also offered as BIOE 581. Prerequisite(s): ELEC 482 or permission of instructor. Instructor(s): *Clark*

ELEC 590 ELECTRICAL PROJECTS (HOURS VARIABLE)**Electrical Projects**

Theoretical and experimental investigations under staff direction. Course may be repeated for up to a total of 6 credit hours. Instructor(s): *Staff*

ELEC 591 FOURIER OPTICS (3)**Fourier Optics**

Survey of optical diffraction and image formation using the technique of Fourier analysis. Both monochromatic and polychromatic light will be considered. Optical systems and system elements such as lenses, waveguides, gratings and interferometers are analyzed. Applications to holography, integrated optics and fiber optics are considered.

ELEC 599 1ST YEAR GRAD STUDENTS PROJECT (6)**First Year Grad Student Projects**

Supervised project required of all first-year graduate students in the Ph.D. program. Instructor(s): *Staff*

ELEC 602 NEURAL NETWORKS AND INFORMATION THEORY (3)**Neural Networks and Information Theory II**

Advanced topics in ANN theories, with a focus on Self-Organizing Maps and unsupervised learning. The course will be a mix of lectures and seminar discussions with active student participation, based on most recent research publications. Students will have access to professional software environment to implement theories. Enrollment limited to 10. Also offered as COMP 602. Instructor(s): *Merenyi*

ELEC 603 NANO-OPTICS (3)**Nano-Optics**

This is a student-based course for seniors and graduate students where a variety of currently hot areas in subwavelength optics will be studied. The main topics include: near field optics, microscopy and sensing, single-molecule spectroscopy, nanoparticles and their optical properties, and photonic crystals and arrays. Format will include a combination of lectures and student presentations. Instructor(s): *Halas*

ELEC 630 MULTITIER WIRELESS NETWORKS (3)**Multitier Wireless Networks**

Topics in multitier wireless networks. Lectures from a range of faculty from ECE and CS. Focused team projects. Appropriate for both undergraduate and graduate students of all levels. Instructor(s): *Baraniuk*

ELEC 631 GRAPHICAL MODELS IN SIGNAL PRO (3)**Graphical Models In Signal Processing**

In this course, we will learn about wavelets and their applications in signal and image processing, including: filterbanks, 1-d and 2-d wavelets, nonlinear approximation, inverse problems, compression, multiscale statistical models, multifractals, and time-frequency analysis. Instead of a standard lecture format, we will emphasize communities, working groups to learn the material together. As we learn, we will build Connexions modules and courses on wavelets (see cnx.rice.edu). The course is offered for repeatable credit in alternate years. Prerequisite(s): ELEC 531 and ELEC 533. Instructor(s): *Baraniuk*

ELEC 632 ADV TOPIC IMAGE AND VIDEO PROCESS (3)**Advanced Topics In Image and Video Processing**

Seminar on topics of current research interest in image and video processing. Students participate in selecting and presenting papers from technical literature. Discussions aim at identifying common themes and important trends in the field. Instructor(s): *Orchard*

ELEC 685 FUND OF MEDICAL IMAGING (1)**Fundamentals of Medical Imaging**

The course will introduce basic medical imaging modalities, such as x-ray, CT, and MRI, used to identify the anatomy of human organs, as well as other modalities, such as PET, SPECT, fMRI, and MEG, specifically developed to localize brain function. The course includes visits to clinical sites. Also offered as BIOE 685 and COMP 685.

ELEC 693 ADV TOPICS - COMPUTER SYSTEMS (HOURS VARIABLE)**Adv Topics—Computer Systems**

Permission of instructor required. May be repeated for credit.

(#) = credit hours per semester

ELEC 694 FUTURE PERSONAL COMPUTR TECHNO (3)**Future Personal Computer Technologies**

Survey of the component and standards trends that are the basis of personal computers and digital appliances with the aim of predicting technologies, solutions, and new products five years into the future. Instructor(s): *Cutler*

ELEC 695 COMMUNIC AND STATSTCL SIGNAL PROC (3)**Adv Topics in Communications and Statistical Signal Process**

Advanced topics in digital image processing. Permission of instructor required.

ELEC 696 COMPUTER ARCHITECTURE SEMINAR (1)**Computer Architecture Seminar**

Discussion of recent research papers in computer architecture and current computer architecture at Rice. May be repeated for credit. Instructor(s): *Pai, Rixner*

ELEC 697 INTRO TO FRACTAL PROCESSES (3)**Intro to Fractal Processes**

In this course we try to balance an introduction to the mathematical background of fractals and ulfractals with applications of theoretical and practical importance, e.g., in Internet traffic modeling and in image processing. Thereby, we will keep things as simple as possible, making the course accessible to a wide audience.

ELEC 760 BAYLOR/RICE MD/PHD PROGRAM (3)**Baylor/Rice MD/PhD Program**

Departmental permission required.

ELEC 800 RESEARCH AND THESIS (HOURS VARIABLE)**Research and Thesis****ENGI (ENGINEERING)****School of Engineering/Engineering Division****ENGI 205 TOPICS IN GLOBAL LEADERSHIP (2)****Topics In Global Leadership In Technology**

Preparatory course for a 1-week travel symposium, with emphasis on leadership development and how technology has driven globalization and business decision making. Pre-trip activities will include lectures and colloquia on relevant topics specific to the destination countries. Post-trip requirements include documentation of the learning experience and organization of a local event to share the experience with others in the Rice community. Enrollment limited to 10.

ENGI 303 ENGINEERING ECONOMICS AND MGMT (3)**Engineering Economics And Mgmt**

Introduction to the evaluation of alternative investment opportunities with emphasis on engineering projects and capital infrastructure. Time value of money concepts are developed in the context of detailed project evaluation and presentations. In addition, concepts and applications of risk analysis and investment under uncertainty are developed. Requires oral and written presentations by students. Also offered as CEVE 303.

ENGI 305 NEW VENTURE COMM FOR SCI AND ENGR (1)**New Venture Communication, Innovation, Discovery for Science/Engineering**

Communicate about products and services based on technological innovation or scientific research. Students choose a new product or service with social or commercial application, write an early-stage business plan, and give a 10-minute financing presentation. Also offered as NSCI 305.

ENGI 307 PREP PROFES'L COMM IN 5 COUNTR (1)**Preparing for Professional Communication In Five Countries, Many Cultures**

Prepares students to anticipate the roles, situations, and expected communication practices they would encounter in engineering firms or other businesses in the United Kingdom, Germany, France, United Arab Emirates, and Singapore. Enrollment limited to 20. Also offered as NSCI 307.

ENGI 309 LEADERSHIP COMMUNICATION (1)**Leadership Communication**

A one-credit course taught in two parts. Teaches writers and speakers how to explain ideas in the context of values for audiences with a variety of vested interests. Covers organizational and persuasive strategies as well as stylistic and delivery techniques. A final presentation and written report required.

(F) = Fall; (S) = Spring

ENGL (ENGLISH)

School of Humanities/English

ENGL 100 FRESHMAN ENGLISH SEMINAR (3)

Freshman English Seminar

Section 001: Freshman English Seminar is typically a theme-based course that includes analysis and discussion of literary texts in poetry, drama, prose, and fiction. Includes frequent submission of essays. Content varies from year to year and from semester to semester. Please consult www.english.rice.edu for current course information. Enrollment limited to 20. Instructor(s): *Staff*

ENGL 103 INTRO TO ARGUMENT AND WRITING (3)

Introduction to Argumentation and Academic Writing

Prepares students for writing in academic disciplines. Topics: identifying argument patterns, using on-line databases, practicing heuristic techniques, revising and editing papers with the conventions of formal written English, and using MLA and APA documentation systems. Prerequisite(s): Permission of the instructor. Instructor(s): *Driskill, Tobin*

ENGL 121 AP CREDIT IN ENGLISH (3)

Advanced Placement Credit in English

Course indication credit given for Advanced Placement in English.

ENGL 122 AP CREDIT IN ENGLISH (3)

Advanced Placement Credit In English

Course Indicating Credit Given for Advanced Placement In English.

ENGL 200 SEM IN LIT AND LITERARY ANALYS (3)

Seminar In Literature and Literary Analysis

This course serves as an introduction to the English major, but it is also open to non-majors. It emphasizes the close reading of literature and critical writing about literature, as well as understanding the social, historical, and cultural contexts within which imaginative works are produced and interpreted. Please consult www.rice.english.edu for additional course information. Enrollment limited to 15. Instructor(s): *Doody, Ellenzweig, Fultz, Morris, Michie*

ENGL 201 INTRO CREATIVE WRITING:FICTION (3)

Introduction to Fiction Writing: What Writers Read

There are writers called "writers' writers", whose works are consistently respected, recommended, and, in fact, considered canonical. We will read work by a variety of contemporary authors. The course is designed to give students who want to become writers the opportunity to learn the vocabulary, lore, and tribal secrets of the writing community. Please consult www.english.rice.edu for additional course information. Class size is limited, to be determined by instructor after the first class meeting. Instructor(s): *Recknagel*

ENGL 209 GREEK AND ROMAN DRAMA (3)

Greek and Roman Drama

Reading, in translation, and dramatic analysis of representative plays, including works by Aeschylus, Sophocles, Euripides, Plautus, Terence, and Seneca. Also offered as CLAS 209. Instructor(s): *Mitchell*

ENGL 210 BRITISH WRITERS:CHAUCER TO 1800 (3)

Major British Writers: Chaucer to 1800

Readings in major British authors of the Middle Ages, the Renaissance, and the 18th century. Please consult www.english.rice.edu for additional course information. Instructor(s): *Browning, Huston, Logan*

ENGL 211 BRITISH WRITERS:1800 - PRESENT (3)

Major British Writers: 1800 to Present

Readings of major British authors of the 19th & 20th centuries. Please consult www.english.rice.edu for additional course information. Instructor(s): *Browning, Logan*

ENGL 215 WORDS IN ENGL:STRUC, HIST, USE (3)

Words In English: Structure, History, Use

Introduction to the study of English words, focusing on their internal structure and the nature and history of English vocabulary. Aims are to enhance knowledge of the rich lexical resources of the language, and to facilitate the acquisition of scientific, technical, legal, and humanistic vocabulary. No previous linguistics background required. Also offered as LING 215. Instructor(s): *Kemmer*

ENGL 250 INTRODUCTION TO THE VICTORIANS (3)

Introduction to the Victorians

This discussion-based course, designed for sophomores but open to all, explores the world of Victorian Britain 1837-1901. Readings may include fiction drama, poetry, and non-fiction (essays, diaries, nature and travel writing, etc.) Texts will be considered in the context of social history and visual and material cultures. Instructor(s): *Logan*

(#) = credit hours per semester

ENGL 260 INTRO TO AMERICAN LITERATURE (3)**Introduction to the Study of American Literature**

This lecture course will examine the work of American novelists as self-conscious renderings of the nation that could not find reasonable expression in genres like poetry and autobiography. The expansive nature of the novel lent itself early on to capture, represent, and reify the progressive discourses of history that turned New England Puritan theocracy into a secularized form of government, known as democracy. Instructor(s): *Aranda, Derrick, Comer*

ENGL 266 ETHNIC LIT. OF 20TH CENT AMERI (3)**Ethnic Literatures of 20th Century America**

This course compares various nonwhite ethnic literatures in twentieth century American literary Traditions. Thematic approaches to auth study include: immigration, global transformation, exile, Economic mobility, citizenship, civil rights, cultural projects, and language. Instructor(s): *Comer, Staff*

ENGL 270 ASPECTS OF MODERN LITERATURE (3)**Aspects of Modern Literature**

This course is an introduction to modern/postmodern culture and includes reading of novels, plays, short stories, poems, psychoanalytic theory, and art criticism/philosophy. The emphasis is on reading and interpreting different kinds of texts in broad cultural contexts. Please consult www.english.rice.edu for additional course information. Enrollment limited to 20. Instructor(s): *Staff*

ENGL 271 US/LATINO LITERATURE (3)**US/Latino Literatures**

This course will serve as an introduction to U.S. Latino/a Literature. We will study the evolution of this literary tradition from its origins in the colonial period, its transformation during the wars of independence from Spain, its second transformation during 19th century American imperialism, and finally its coming of age under the conflicting processes of ethnicity, race, nationalism, language, gender, and citizenship during the 20th century. Enrollment limited to 20. Instructor(s): *Aranda*

ENGL 275 INTRODUCTION TO FILM (3)**Introduction to Film: Film Criticism**

This writing-intensive course will teach students to view films analytically and write film criticism. Each week, students will view a film, read some criticism of that film, and write their own review of the film. Screenings will be taken from important movements in world cinema history. Please consult www.english.rice.edu for additional course information. Also offered as HART 285. Instructor(s): *Ostberr*

ENGL 286 CLASSICAL AND CONTEMPORARY FILM (3)**Classical and Contemporary Film Theory**

This course introduces the student to approaches to understanding and interpreting film as film. It traces the attempts to grasp the new medium in theoretical terms from its origins to the present day. Topics include: montage, mise-en-scene, the gaze, history, psychoanalysis, and feminism. Also offered as HART 286. Instructor(s): *Dove, Charles*

ENGL 300 PRACTICES OF LITERARY STUDY (3)**Practices of Literary Study: Reading Methods**

This course covers the key concepts routinely surfacing in critical writing today. Students read short texts in the development of contemporary theory and discuss, at length, the ways literature practices the ideas which theory articulates. Required for English majors. Please consult www.english.rice.edu for additional course information. Enrollment limited to 20. Instructor(s): *Derrick, Dietz, Doody, Logan*

ENGL 301 CREATIVE WRITING: FICTION (3)**Fiction Writing**

This course teaches the fundamentals of fiction writing, and includes a mixture of reading and writing assignments. The goal is for each student to produce two short stories possessing imaginative ingenuity, structural integrity, and literary merit by the end of the semester. Consult www.english.rice.edu for additional course information. This course typically over-enrolls. Admission is therefore selective and based on a writing sample. Interested students are advised to attend the first class meeting for guidelines for the writing sample submission. For more information go to www.ruf.rice.edu/~jccronin/301/index.html. Instructor(s): *Cronin, Staff*

ENGL 303 DRAMATIC WRITING (3)**Dramatic Writing**

The emphasis, depending on individual students, will be on the writing for drama in one or several of the chief modes of the performing arts: plays, films, musicals, opera- even dance. Prerequisite(s): Permission of the instructor. May be repeated for credit. Instructor(s): *Mitchell*

(F) = Fall; (S) = Spring

ENGL 304 CREATIVE WRITING: POETRY (3)**Creative Writing: Introduction to Poetry Writing**

Students will be introduced to the craft of writing poetry, will read and study contemporary poets, and will write their own poems and critique them in a workshop setting. Instructor(s): *Wood, Staff*

ENGL 305 CREATIVE WRITE: PERSONAL ESSAY (3)**Creative Writing: Personal Essay**

Writing and reading personal essay and autobiography. Please consult www.english.rice.edu for additional course information. Prerequisite(s): Permission of the instructor required. Class size is limited, to be determined after the first class meeting. Instructor(s): *Recknagel*

ENGL 306 EXPOSITORY PROSE (3)**Expository Prose**

Students write a sequence of short essays on subjects of their own choosing. In the process, they experience how elements like structure, voice, figurative language, and style contribute to rhetorical effectiveness. Instructor(s): *Tobin*

ENGL 307 MED/TECH COMMUNICATION (3)**Medical/Technical Communication**

A course in physician-patient communication. Also builds skills in writing and presentations to help students prepare for medical school. Not open to freshmen.

ENGL 309 MYTHOLOGIES (3)**Mythologies**

This course introduces students to world mythologies and mythmakers, from the beginnings to the modern period. Included mythologies: Babylonian, Sumerian, Hindu, Egyptian, Greek, Roman, Irish, Welsh, Old Norse, Anglo-Saxon, Finnish, Mayan, Hopi, modern (Borges, Phillip Glass). Consult www.english.rice.edu for additional course information. Course also offered as MDST 368/ WGST 368 Instructor(s): *Chance*

ENGL 310 DANTE (3)**Dante**

A reading of Dante's Divine Comedy, with attention to the meaning of words, images, symbols, figures, structures, and the meaning of the book with reference to the political/ religious controversies of the time. Consult www.english.rice.edu for additional course information. Also offered as MDST 311. Instructor(s): *Chance*

ENGL 311 MEDIEVAL WOMEN WRITERS (3)**Medieval Women Writers**

This course examines significant medieval European women authors from the 10th-17th centuries, from Italy and Germany to France, England, Austria, and Spain. Using various techniques/media to access works, we will combine close reading with a focus on intertextuality. Also offered as MDST 311/WGST 300 Instructor(s): *Chance*

ENGL 315 INTRO TO MEDIEVAL CULTURES (3)**Introduction to Medieval Cultures**

An interdisciplinary course exploring the literature, art, philosophy, history, music, and science of the Middle Ages, with films by Pasolini, Bergman, Einstein, Annaud, Vigne, and others, and highlighted by a medieval banquet. Please consult www.english.rice.edu for additional course information. Instructor(s): *Chance*

ENGL 316 CHAUCER (3)**Chaucer**

Focus will be primarily on The Canterbury Tales, this philosophical and material culture, and their dramatic and literary potential. Please consult www.english.rice.edu for additional course information. Also offered as WGST 305, MDST 316 Instructor(s): *Chance*

ENGL 317 ARTHURIAN LITERATURE (3)**Arthurian Literature**

A survey of the origins and development of the Arthurian legend from the earliest chronicles in the sixth century and later medieval French, Welsh, Irish, and English Arthurian poems to modern adaptations of Arthurian material, including films. Please consult www.english.rice.edu for additional information. Also offered as WGST 301, MDST 317. Instructor(s): *Chance*

ENGL 318 J.R.R. TOLKIEN (3)**J.R.R. Tolkien**

This course will trace the tension between the exile (wraecca) and the community; otherness and heroism; identity and marginalization; revenge and forgiveness. Please consult www.english.rice.edu for additional course information. Also offered as MDST 318. Instructor(s): *Chance*

(#) = credit hours per semester

ENGL 319 SURV OF BRITISH WOMEN WRITERS (3)**Survey of British Women Writers 1400-1900**

A survey of major British early writers. Poems, memoirs, plays, and novels by significant women, and their film adaptations. Please consult www.english.rice.edu for additional course information. Also offered as WGST 349. Instructor(s): *Chance*

ENGL 320 SHAKESPEARE ON FILM (3)**Shakespeare and Film**

This course will examine both the text of selected Shakespearean plays and films made from them, focusing on the difference between film and drama. Please consult www.english.rice.edu for additional course information. Permission of instructor required. Limited enrollment. Instructor(s): *Huston*

ENGL 321 SHAKESPEARE (3)**Shakespeare**

Representative plays, including tragedies, comedies, histories and romances. Specific content varies from year to year. Please consult www.english.rice.edu for additional course information. Instructor(s): *Dietz*

ENGL 324 OLD ENGLISH GRAMMAR(3)**Old English Grammar**

This course will be a combination of Old English Grammar and readings in Old English. Please consult www.english.rice.edu for additional course information. Also offered as MDST 311 and LING 312. Instructor(s): *Mitchell*

ENGL 326 EARLY MODERN LITERATURE (3)**Early Modern Literature: Reading the Renaissance**

This course examines forms of love poetry, medical treatises, letters, and courtly masques. Since each of these works is a product of England's changing cultural landscape, we'll be able to consider the ways in which they also reflect England's changing social history. Consult www.english.rice.edu for additional course information. Instructor(s): *Dietz*

ENGL 328 MILTON (3)**Milton**

Major poems and prose of John Milton. Please consult www.english.rice.edu for additional course information. Instructor(s): *Snow*

ENGL 331 TOPICS IN 18TH-CENTURY LIT (3)**Topics In 18th-Century Literature**

Covers major themes, forms, authors, and genres in 18th-century literature. Possibilities include studies in the early novel tradition, and literature's connection to Enlightenment innovations in philosophy, politics, social structure, religion, and gender relations. Please visit <http://www.english.rice.edu> for additional information. Instructor(s): *Ellenzweig*

ENGL 332 LIT OF ENGL ENLIGHTENMENT (3)**Literature of the English Enlightenment**

This course will examine a representative range of British prose and poetry from 1660-1790, the period known as the Enlightenment. This was a volatile age of plots, revolution, philosophical and scientific innovation, and literary transformation. Our readings will cover poems of several genres, short prose narratives, essays and philosophical treatises. Instructor(s): *Staff*

ENGL 333 18TH CENTURY BRITISH FICTION (3)**18th Century British Fiction**

This course explores the emergence and consolidation of the English novel and its dynamic relationship to many other 18th-century legacies; the modern individual, capitalism, civil society, the middle class, democracy, and colonialism. Please consult www.english.rice.edu for additional course information. Instructor(s): *Doody, Staff*

ENGL 339 BRITISH ROMANTICS: POETRY (3)**Survey of British Romantics: Poetry**

The major writings of Blake, Wordsworth, Coleridge, Byron, Shelley, and Keats. Please consult www.english.rice.edu for additional course information. Instructor(s): *Grob*

ENGL 341 VICTORIAN PANORAMA (3)**Victorian Literature, Excluding Fiction**

This course ventures into the array of creative works in the nonfiction genres, exploring the riches of Victorian writing and culture through the reading of poems and prose. Please consult www.english.rice.edu for additional course information. Instructor(s): *Logan*

(F) = Fall; (S) = Spring

ENGL 342 SURVEY OF VICTORIAN FICTION (3)**Survey of Victorian Fiction**

A survey of the many genres of the nineteenth-century novel, this course will try to come to terms with some of the insistent questions posed by and through the fiction of the period. Please consult www.english.rice.edu for additional course information. Also offered as WGST 372. Instructor(s): *Michie*

ENGL 346 20TH CENTURY BRITISH LIT. (3)**Survey of 20th Century British Literature**

This course surveys major writers in 20th-century British fiction, including colonial and postcolonial Irish, Indian, and African novelists. Together with the novels, we will read essays in narrative theory, so the course also serves as a practical introduction to methods and issues in interpretation of modern and postmodern fiction. Please consult www.english.rice.edu for additional course information. Instructor(s): *Staff, Lamos*

ENGL 350 SURV OF EURO FICTION: 20TH CEN (3)**Survey of European Fiction: 20th Century**

This course will begin with Proust's "Swann's Way" and follow political and formal developments in French, German, Russian, and Eastern European novels by writers such as Hasek, Pasternak, Hrabal, and Boll. Instructor(s): *Doody*

ENGL 355 MODERN SHORT FICTION (3)**Modern Short Fiction from Balzac to Borges**

A study of the great works of American and European short fiction from the late 18th through 20th century. Please consult www.english.rice.edu for additional course information. Also offered as FREN 355. Instructor(s): *Harder*

ENGL 357 ORIGINS OF THE POSTMODERN (3)**Origins of the Postmodern**

This course examines diverse cultural manifestations of the "postmodern" through the last half of the twentieth century. Popular music, novels, plays, film, art, and fairy-tales may be discussed. Please consult www.english.rice.edu for additional course information. Instructor(s): *Morris*

ENGL 360 AMERICAN LIT. BEFORE 1860 (3)**American Literature, Before 1860**

This course will focus careful attention on a complete reading on a number of the most significant traditionally valued texts of the "American Renaissance." Please consult www.english.rice.edu for additional course information. Instructor(s): *Derrick, Staff*

ENGL 361 AMERICAN LITERATURE 1860-1910 (3)**American Literature 1860-1910**

Surveys the literature of the major authors of the period, including Mark Twain, Emily Dickinson, Stephen Crane, Henry James, and others. Please consult www.english.rice.edu for additional course information. Instructor(s): *Wolfe*

ENGL 362 AMER FICTION 1910 - 1940 (3)**Survey of American Fiction 1910-1940**

Surveys the literature of the major authors of the period, including Wharton, Hemingway, Fitzgerald, Faulkner, Dos Passos, and their contemporaries. Instructor(s): *Morris, Wolfe, Staff*

ENGL 363 AMERICAN FICTION 1950-PRESENT (3)**American Fiction 1950-Present**

Surveys the literature of the major authors of the period, and will include examination of the narrative experiments and trends of the period. Please consult www.english.rice.edu for additional course information. Instructor(s): *Doody*

ENGL 364 AMERICAN POETRY 1900-1960 (3)**American Poetry 1900-1960**

Major American poets of the period such as Wallace Stevens, Hart Crane, William Carlos Williams, T.S. Eliot, and others. Please consult www.english.rice.edu for additional course information. Instructor(s): *Wolfe*

ENGL 365 AMERICAN POETRY 1960-PRESENT (3)**American Poetry 1960-Present**

Covers major poets of the period such as Robert Lowell, Sylvia Plath, Adrienne Rich, Elizabeth Bishop, W.S. Merwin and others. Please consult www.english.rice.edu for additional course information. Instructor(s): *Staff*

ENGL 366 TOPICS IN AMERICAN LIT (3)**Topics In American Literature**

Topics vary from year to year. Please consult www.english.rice.edu for additional course information. Instructor(s): *Levander, Caroline*

(#) = credit hours per semester

ENGL 367 AMERICAN ECOFEMINISM (3)**American Ecofeminism**

A consideration of the culture of feminist environmentalism. Interdisciplinary materials include literature, social movement theory, film, and environmental and social history. Please consult www.english.rice.edu for additional course information. Also offered as WGST 367. Instructor(s): *Comer*

ENGL 368 LITERATURE & THE ENVIRONMENT (3)**Literature and the Environment**

How does literature express or shape environmental values? In this class we will read American fiction and nonfiction exploring the relationship between human and nonhuman nature. Please consult www.english.rice.edu for additional course information. Instructor(s): *Slappey*

ENGL 369 LIT & CULT AMERICAN WEST (3)**Literature and Culture of the American West**

What is the American West? An ecosystem, national mythology, cultural region, a commodity? Emphasizing new approaches to the study of regional cultures, we study the American West as it has been represented in both film and literature. Notions of borders, landscapes, and national "dreams" will be central to our discussions. Also offered as WGST 329. Instructor(s): *Comer*

ENGL 370 SURVEY AFRICAN AMER LIT (3)**Survey of African American Literature Distribution Course**

This course traces, through various genres and themes, African American literary history from the late eighteenth century to the present. Attention is given to theories and critiques of African American literature and culture. Please consult www.english.rice.edu for additional information. Also offered as WGST 370. Instructor(s): *Fultz*

ENGL 371 SURVEY OF CHICANO/A LITERATURE (3)**Survey of Chicano/A Literature**

This mixed-genre course will focus on the Chicano movement, the Chicano renaissance, and their alternative literary and mythic traditions. Please consult www.english.rice.edu for additional course information. Instructor(s): *Aranda*

ENGL 372 SURVEY OF ASIAN AMERICAN LIT (3)**Survey of Asian American Literature**

Offered from time to time. Material covered will vary with instructor. Please consult www.english.rice.edu for additional course information. Also offered as ASIA 372. Instructor(s): *Comer, Staff*

ENGL 373 SURVEY OF AMER FILM & CULTURE (4)**Survey of American Film and Culture**

This course will cover the history of cinema in the US from its origins to the present day. Please consult www.english.rice.edu for additional course information. Also offered as HART 380. Instructor(s): *Ostberr*

ENGL 377 ART AND LITERATURE (3)**Art and Literature**

Please consult www.english.rice.edu for additional course information. Instructor(s): *Snow, Vermeer, Hitchcock, Hammett, Rilke*

ENGL 378 CARIBBEAN FICTION (3)**Caribbean Fiction**

In spite of the region's political fragmentation and linguistic diversity, the Caribbean in many ways constitutes a unified literary region. This course examines differences and commonalities in the responses to the distinctive features of Caribbean history and geography in works by English-, Spanish-, French-, Dutch-speaking authors. Authors studied include Alejo Carpentier, Reinaldo Arenas, Rosario Arenas, Rosario Ferre, V.S. Naipaul, George Lamming, Jean Rhys, Cristina Garcia, Patrick Chamoiseau, and Frank Martinus Arion. Taught in English. Also offered as SPAN 393. Instructor(s): *Van Delden*

ENGL 379 THIRD WORLD LIT IN ENGLISH (3)**Introduction to Third World Literature**

This course primarily surveys fiction, poetry, drama, film, (written in English) from areas of the world now known as Third World. Please consult www.english.rice.edu for additional course information. Instructor(s): *Joseph*

ENGL 380 20TH CENTURY WOMEN WRITERS (3)**20th Century Women Writers**

Courses and material covered varies from year to year. Please consult www.english.rice.edu for additional course information. Also offered as WGST 327. Instructor(s): *Lamos, Staff*

(F) = Fall; (S) = Spring

ENGL 382 FEMINIST LITERARY THEORY (3)**Feminist Literary Theory**

Material and focus varies. Please consult www.english.rice.edu for additional course information. Also offered as WGST 480. Instructor(s): *Lurie, Staff*

ENGL 387 CULTURAL STUDIES (3)**Cultural Studies**

Topics vary from year to year. Please consult www.english.rice.edu for additional information. Instructor(s): *Levander, Ostberr, Staff*

ENGL 389 GENERATION X IN LIT. & CULTURE (3)**Generation X In Literature and Culture**

An interdisciplinary survey of Generation X in literature, music, film, and politics. Please consult www.english.rice.edu for additional information. Also offered as WGST 388. Instructor(s): *Comer*

ENGL 390 INTRODUCTION TO THEATRE (3)**Introduction to Theatre**

A survey of the art and theory of the theatre through an examination of dramatic literature from the Greeks through the modern era. The course will also explore the craft of the theatre as it is practiced today. Also offered as THEA 303. Instructor(s): *Staff*

ENGL 394 STRUCTURE OF ENGL LANGUAGE (3)**Structure of the English Language**

Introduction of modern English grammar, phonology, and semantics. Also offered as LING 394. Instructor(s): *Shibitani*

ENGL 397 TOPICS IN LITERATURE (3)**Topics In Literature**

Topics vary from year to year. Please consult www.english.rice.edu for additional course information. Instructor(s): *Staff*

ENGL 401 ADV CREATIVE WRITING:FICTION (3)**Advanced Creative Writing: Fiction**

This course will be conducted mostly as a workshop, although the course will also include some assigned writing exercises and weekly reading of published short stories to deepen students' understanding of narrative technique. May be recreated for credit. Prerequisite(s): ENGL 301 For more information go to www.ruf.rice.edu/~jccronin/401/index.html. Instructor(s): *Cronin*

ENGL 404 ADV CREATIVE WRITING:POETRY (3)**Advanced Creative Writing: Poetry**

Advanced Poetry Writing: A more in-depth exploration in the techniques of writing poetry with additional concentrated study of contemporary poetry. Students will continue to write and critique in a workshop setting. Instructor(s): *Wood*

ENGL 421 17TH CENTURY BRITISH LIT STUDY (3)**17th Century British Literature Studies**

Readings and materials drawn from 17th-century England. Course content varies. Instructor(s): *Staff*

ENGL 422 18TH CENTURY BRITISH LIT STUDY (3)**18th Century British Literature Studies**

Courses vary from year to year. Please consult www.english.rice.edu for additional course information. Instructor(s): *Ellenzweig, Joseph*

ENGL 423 19TH CENTURY BRITISH LIT STUDY (3)**19th Century British Literature Studies**

Courses vary from year to year. Please consult www.english.rice.edu for additional course information. Instructor(s): *Logan, Michie, Patten, Staff*

ENGL 424 20TH CENTURY BRITISH LIT STUDY (3)**20th Century British Literature Studies**

Courses vary from year to year. Please consult www.english.rice.edu for additional course information. Instructor(s): *Doody, Lamos, Staff*

(#) = credit hours per semester

ENGL 432 ORIGINS OF THE ENGLISH NOVEL (3)**Origins of the English Novel**

The most important literary innovation of the 18th -century was the birth of the novel. We will examine the modern social and cultural forces crucial to and inextricable from this watershed development: the emergence of liberalism, conservatism, feminism, class, secular culture, the sex/gender system, individualism, and the separation of public and private spheres. Instructor(s): Ellenzwig

ENGL 441 VICTORIAN STUDIES (3)**Victorian Studies**

Courses vary from year to year. Please consult www.english.rice.edu for additional course information. Instructor(s): Logan, Michie, Patten

ENGL 443 AUSTEN ONLY (3)**Austen Only**

This course will try to come to terms with Jane Austen as author and icon. Material will include all her fiction as well as portions of her letters and biography. Recent film and television adaptations of her novels will also be critically examined. Also offered as WGST 405 Instructor(s): Michie

ENGL 461 19TH CENTURY AMER STUDIES (3)**19th Century American Studies**

Courses vary from year to year. Please consult www.english.rice.edu for additional course information. Instructor(s): Derrick, Levander, Wolfe

ENGL 462 20TH-21ST CENT AMER LIT STUDY (3)**20th-21st Century American Literature Studies**

Courses vary from year to year. Please consult www.english.rice.edu for additional course information. Instructor(s): Lurie, Staff

ENGL 466 STUDIES IN AMERICAN LITERATURE (3)**Studies In American Literature**

Topics will vary from year to year. Instructor(s): Staff

ENGL 468 LITERATURE AND THE ENVIRONMENT (3)**Literature and the Environment**

Courses vary from year to year. Please consult www.english.rice.edu for additional course information. Instructor(s): Staff

ENGL 470 TOPICS IN AFRICAN AMERICAN LIT (3)**Topics In African American Literature**

Courses vary from year to year. Please consult www.english.rice.edu for additional course information. Instructor(s): Fultz

ENGL 471 TOPICS IN CHICANO/A LITERATURE (3)**Topics In Chicano/A Literature**

Courses vary from year to year. Please consult www.english.rice.edu for additional course information. Instructor(s): Aranda

ENGL 472 NATIVE AMERICAN LITERATURE (3)**Native American Literature**

This course examines the literature of the Native American Renaissance, from N. Scott Momaday's groundbreaking Pulitzer Prize-winning novel, *House Made of Dawn* (1968), to the recent works of some emerging writers. Literary analysis will be supplemented by an awareness of the cultural and political movements important to American Indian peoples in the late 20th century. Instructor(s): Slappey

ENGL 475 MOD DRAMA ON FILM & IN PERFORM (3)**Modern Drama on Film and In Performance**

This course focuses on drama not only as a text but also as performance. Please consult www.english.rice.edu for additional course information. Instructor(s): Huston

ENGL 481 FEMINIST LIT THRY&CRITICSM (3)**Introduction to Feminist Literary Theory and Criticism****ENGL 484 STUDIES IN LITERARY GENRES (3)****Studies In Literary Genres**

Courses vary from year to year. Please consult www.english.rice.edu for additional course information. Instructor(s): Staff

(F) = Fall; (S) = Spring

ENGL 485 STUDIES IN MODERN LITERATURE (3)**Studies In Modern Literature**

Courses vary from year to year. Please consult www.english.rice.edu for additional information. Instructor(s): *Lamos, Morris, Staff*

ENGL 487 AREA STUDIES: GLOBAL FICTIONS (3)**Area Studies: Global Fictions**

This course examines narrative fictions that represent various attempts to grasp the global-- as an idea, a cognitive map, a pattern of movement, a series of events, a montage of images, etc. Please consult www.english.rice.edu for additional course information. Instructor(s): *Joseph*

ENGL 489 STUDIES IN FILM (3)**Studies In Film:**

Courses vary from year to year. Please consult www.english.rice.edu for additional course information. Instructor(s): *Ostherr*

ENGL 490 STUDIES IN MAJOR BRIT AUTHORS (3)**Studies In Major British Authors**

Courses vary from year to year. Please consult www.english.rice.edu for additional course information. Instructor(s): *Staff*

ENGL 491 STUDIES IN MAJOR AMER. AUTHORS (3)**Studies In Major American Authors**

Courses vary from year to year. Please consult www.english.rice.edu for additional course information. Instructor(s): *Staff*

ENGL 493 DIRECTED READING (HOURS VARIABLE)**Directed Reading**

Students may occasionally arrange a semester-long independent study in a specific area of interest with the professor's approval. Requirements must be discussed with the professor. Instructor(s): *Staff*

ENGL 494 SENIOR SEMINAR (3)**Senior Seminar****ENGL 495 SENIOR THESIS (3)****Senior Thesis****ENGL 498 QUEER THEORY (3)****Queer Theory**

What is queer theory and why is it important? This course aims to answer these questions by examining key issues in queer theory and situating them in the context of major literary and cultural theories of the past quarter century. As such the course will also serve as an introduction to psychoanalytic theory, postculturalism, deconstruction, postcolonial theory, film studies and recent work on the relationship between science and literature. Instructor(s): *Lamos*

ENGL 499 STUDIES IN LITERARY THEORY (3)**Studies In Literary Theory**

Courses vary from year to year. Please consult www.english.rice.edu for additional course information. Instructor(s): *Lamos, Lurie, Wolfe, Staff*

ENGL 509 MASTER'S THESIS (3)**Master's Thesis****ENGL 510 PEDAGOGY (3)****Pedagogy**

For third-year students preparing to teach their own sections of Freshman English. This two-semester course will help students put together syllabi and other teaching materials, address various pedagogical problems, formulate their teaching philosophies and provide classroom assistance in their independent teaching. Instructor(s): *Staff*

ENGL 511 PEDAGOGY (3)**Pedagogy**

Continuation of ENGL 510. Instructor(s): *Staff*

ENGL 514 MIDDLE ENGLISH LIT (3)**Middle English Literature**

Topics vary from year to year. Please consult www.english.rice.edu for additional course information. Instructor(s): *Staff*

(#) = credit hours per semester

ENGL 516 CHAUCER (3)**Chaucer**

Topics vary from year to year as needed. Please consult www.english.rice.edu for additional course information.
Instructor(s): *Staff*

ENGL 519 16TH CENTURY BRITISH LIT (3)**16th Century British Literature Voice**

Topics vary from year to year. Please consult www.english.rice.edu for additional course information.
Instructor(s): *Staff*

ENGL 520 SHAKESPEARE AND DIFFERENCE (3)**Shakespeare and Difference**

Topics vary from year to year as needed. Please consult www.english.rice.edu for additional course information.
Instructor(s): *Staff*

ENGL 521 SHAKESPEARE (3)**Shakespeare**

Topics vary from year to year as needed. Please consult www.english.rice.edu for additional course information.
Instructor(s): *Staff*

ENGL 522 SHAKESPEARE AND THEORY (3)**Shakespeare and Theory**

Topics vary from year to year as needed. Please consult www.english.rice.edu for additional course information.

ENGL 523 ELIZABETHAN & JACOBAN DRAMA (3)**Elizabethan and Jacobean Drama**

Topics vary from year to year. Please consult www.english.rice.edu for additional course information. Instructor(s): *Staff*

ENGL 526 17TH CENTURY POETRY & PROSE (3)**17th Century Poetry and Prose**

Topics vary from year to year as needed. Please consult www.english.rice.edu for additional course information.
Instructor(s): *Staff*

ENGL 528 MILTON (3)**Milton**

An enriched version of English 328 for graduate students.

ENGL 532 18CENTURY BRITISH LIT (3)**18th Century British Literature**

Topics vary from year to year. Please consult www.english.rice.edu for additional course information. Different topics may be repeatable for credit. Instructor(s): *Staff*

ENGL 534 18TH CENTURY BRITISH FICTION (3)**18th Century British Fiction**

Topics vary from year to year. Please consult www.english.rice.edu for additional course information.
Instructor(s): *Staff*

ENGL 537 19TH CENTURY BRITISH FICTION (3)**19th Century British Fiction**

A survey of 19th century British fiction genres. Topics covered include various theories of fiction-e.g. semiotic, structuralist, materialist, reader-response, feminist, spatialist- and various examples of fictional genres-e.g., Gothic, domestic, historical, romance, industrial, sensation, mystery. Topics and novels vary from year to year. Please consult <http://www.english.rice.edu> for additional information. Instructor(s): *Patten, Michie, Logan*

ENGL 539 BRITISH ROMANTICS (3)**British Romantics**

Topics vary from year to year. Please consult www.english.rice.edu for additional course information.
Instructor(s): *Staff*

ENGL 541 VICTORIAN LITERATURE (3)**Victorian Literature**

Topics vary from year to year as needed. Please consult www.english.rice.edu for additional course information.
Instructor(s): *Staff*

ENGL 542 VICTORIAN FICTION (3)**Victorian Fiction**

Topics vary from year to year. Different topics may be repeated for credit. Please consult www.english.rice.edu for additional course information. Instructor(s): *Staff*

(F) = Fall; (S) = Spring

ENGL 543 VICTORIAN POETRY AND PROSE (3)**Victorian Poetry And Prose**

Topics vary from year to year as needed. Different topics may be repeated for credit. Please consult www.english.rice.edu for additional course information. Instructor(s): *Staff*

ENGL 546 20TH CENTURY BRITISH LIT. (3)**20th Century British Literature**

Topics vary from year to year. Different topics may be repeatable for credit. Please consult www.english.rice.edu or additional course information. Instructor(s): *Staff*

ENGL 560 19TH CENTURY AMERICAN LIT. (3)**19th Century American Literature**

Topics vary from year to year as needed. Please consult www.english.rice.edu for additional course information. Instructor(s): *Staff*

ENGL 562 MODERN AMERICAN FICTION (3)**Modern American Fiction**

Topics vary from year to year as needed. Please consult www.english.rice.edu for additional course information. Instructor(s): *Staff*

ENGL 563 20TH C. AMER LIT & CUL (3)**20th Century American Literature and Cultural Studies**

Topics vary from year to year as needed. Please consult www.english.rice.edu for additional course information. Instructor(s): *Staff*

ENGL 564 FAULKNER & CONTEMP THEORY (3)**Faulkner and Contemporary Theory**

We will read closely and discuss fully four or five of Faulkner's major novels in the context of a broad range of twentieth-century interpretive strategies. The class will consider issues of narrative form, social context, gender, race, and modern and postmodern aesthetics. Consult www.english.rice.edu for additional course information. Instructor(s): *Morris*

ENGL 570 AFRICAN AMERICAN STUDIES (3)**African American Studies**

Topics vary from year to year as needed. Please consult www.english.rice.edu for additional course information. Instructor(s): *Staff*

ENGL 572 CHICANO/A STUDIES (3)**Chicano/A Studies**

Topics vary from year to year. Please consult www.english.rice.edu for additional course information. Instructor(s): *Staff*

ENGL 575 FILM AND THEORY (3)**Film and Theory**

Topics vary from year to year. Different topics may be repeated for credit. Please consult www.english.rice.edu for additional course information. Instructor(s): *Staff*

ENGL 578 LITERATURE AND THE ENVIRONMENT (3)**Literature and the Environment**

Topics vary from year to year as needed. Please consult www.english.rice.edu for additional course information. Instructor(s): *Staff*

ENGL 581 CULTURAL STUDIES (3)**Cultural Studies**

Topics vary from year to year as needed. Please consult www.english.rice.edu for additional course information. Instructor(s): *Staff*

ENGL 582 FEMINIST LITERARY THEORY (3)**Feminist Literary Theory**

Topics vary from year to year. Please consult www.english.rice.edu for additional course information. Instructor(s): *Staff*

ENGL 583 FEMINIST ISSUES (3)**Feminist Issues**

Topics vary from year to year as needed. Please consult www.english.rice.edu for additional course information. Also offered as WGST 483. Instructor(s): *Staff*

(#) = credit hours per semester

ENGL 585 POSTCOLONIALISM AND AFTER (3)**Postcolonialism and After**

Course serves both as introduction to postcolonial theory and as a reevaluation of its political and ethical ends vis-a-vis recent debates around globalization and cosmopolitanism. Please consult www.english.rice.edu for additional course information. Instructor(s): *Joseph*

ENGL 588 MEDIA STUDIES (3)**Media Studies**

Topics vary from year to year but will likely address inter-disciplinary approaches to studying the relationships between film, photography, television, and digital technologies such as the internet and computer-generated imaging. Please consult www.english.rice.edu for additional course information. Instructor(s): *Ostherr*

ENGL 589 FILM STUDIES (3)**Film Studies**

Topics vary from year to year but will likely address advanced issues in film theory, history, and methodologies. Please consult www.english.rice.edu for additional course information. Instructor(s): *Ostherr*

ENGL 591 STUDIES IN LIT & OTHER DISCIPL (3)**Studies In Literature and Other Disciplines**

Topics vary from year to year as needed. Different topics may be repeated for credit. Please consult www.english.rice.edu for additional course information. Instructor(s): *Staff*

ENGL 592 STUDIES IN MODERNISM (3)**Studies In Modernism**

What was Modernism? This course explores theories of Modernism and Modernity, from Baudelaire to Benjamin. Inter-disciplinary in scope, it will include discussion of musical works, visual arts, and literary texts, focusing upon British and American literature. Course offered Spring 2005 Instructor(s): *Lamos*

ENGL 593 STUDIES IN MODERN LITERATURE (3)**Studies In Literature**

Course content varies. Please consult <http://www.english.rice.edu> for specific course information. Instructor(s): *Doody, Lamos, Staff*

ENGL 596 STUDIES IN MAJ AMER AUTHORS (3)**Studies In Major American Authors**

Topics vary from year to year as needed. Different topics may be repeated for credit. Please consult www.english.rice.edu for additional course information. Instructor(s): *Staff*

ENGL 597 ANGLOPHONE FICTION (3)**Anglophone Fiction**

Topics vary from year to year. Please consult www.english.rice.edu for additional course information. Instructor(s): *Staff*

ENGL 599 STUDIES IN LITERARY THEORY (3)**Studies In Literary Theory**

Topics vary from year to year. Different topics may be repeated for credit. Please consult www.english.rice.edu for additional course information. Instructor(s): *Staff*

ENGL 600 PROFESSIONAL METHODOLOGY (3)**Professional Methodology**

Basic seminar for first year graduate students. An introduction to core concepts in English literary and cultural studies, significant critical and theoretical paradigms, disciplinary trends and various genres of academic writing. Please consult www.english.rice.edu for additional course information. Instructor(s): *Staff*

ENGL 601 FALL TEACHING PRACTICUM (3)**Fall Teaching Practicum**

Open only to those graduate students serving as teaching assistants for courses in English or the humanities.

ENGL 602 SPRING TEACHING PRACTICUM (3)**Teaching Practicum**

Open only to those graduate students serving as teaching assistants for courses in English or the humanities.

ENGL 603 TEACHING OF LIT & COMP (3)**Fall Teaching of Literature and Composition**

Open only to graduate students teaching courses.

(F) = Fall; (S) = Spring

ENGL 604 TEACHING OF LIT & COMP (3)**Spring Teaching of Literature and Composition**

Open only to those graduate students teaching courses.

ENGL 605 THIRD-YEAR WRITING WORKSHOP (3)**Third-Year Writing Workshop**

Open to third-year students. Designed to help transform seminar papers into works of publishable quality.

ENGL 621 FALL DIRECTED READING (3)**Directed Reading****ENGL 622 SPRING DIRECTED READING (3)****Directed Reading**

Continuation of ENGL 621

ENGL 703 RESEARCH LEADING TO CANDIDACY (HOURS VARIABLE)**Fall Research Leading to Candidacy****ENGL 704 RESEARCH LEADING TO CANDIDACY (HOURS VARIABLE)****Spring Research Leading to Candidacy**

Continuation of ENGL 703.

ENGL 800 PHD RESEARCH AND THESIS (HOURS VARIABLE)**PhD Research and Thesis**

To be taken after a student has been admitted to candidacy.

ENST (ENVIRONMENTAL STUDIES)**No College Designated/Environment Studies****ENST 101 THE SUSTAINABLE ENVIRONMENT (3)****The Sustainable Environment**

Open only to freshman. Also offered as UNIV 111. Enrollment is limited to 15.

ENST 113 ENVIRONMENTAL CRISIS SEMINAR (1)**Environmental Crisis Seminar: Water**

Water - one of the most basic and important components of the environment. But how is the water cycle changing and what are the current issues? In this semester's course we will discuss water from an interdisciplinary perspective, from reservoirs, and flow, through life and uses, to pollution and rights. Also offered as BIOS 113 and ESCI 113.

ENST 301 INTRO ENVIRON:ENVIRON HIST&LIT (3)**Introduction to the Environment: Environmental History and Environmental Literature**

This course is intended as an introduction to environmental studies from all divisions of the campus. The course focuses on attitudes and values relating to the environment as represented in environmental history and environmental literature. Also offered as UNIV 300.

ENST 302 ENVIRON ISSUES:RICE IN FUTURE (3)**Environmental Issues: Rice Into the Future**

This course addresses science, technology, and policy elements of environmental issues. Students use the campus and local community as a laboratory in which to do projects to reduce environmental impacts, enhance sustainability, or resolve environmental problems.

ENST 400 INDEPENDENT STUDY (3)**Independent Study**

Prerequisite(s): Permission of instructor.

ESCI (EARTH SCIENCE)**School of Natural Sciences/Earth Science****ESCI 101 THE EARTH (3)****The Earth**

Study of the nature of the Earth and the processes that change it. Recommended corequisite: ESCI 105.Co-requisite: Recommended ESCI 105. Instructor(s): *Lenardic, Gordon, Morgan, Luttgé*

(#) = credit hours per semester

ESCI 102 EVOLUTION OF THE EARTH (3)**Evolution of the Earth**

History of the earth and evolution of continents, ocean basins, life and climate over the past 4.6 billion years.

Co-requisite(s): Recommended ESCI 105. Instructor(s): *Staff*

ESCI 103 FIELD TRIPS FOR THE EARTH (1)**Field Trips for the Earth**

Four evening lectures of one hour each prior to one long and one one-day field trip. Instructor(s): *Droxler*

ESCI 105 INTRO LAB FOR EARTH SCIENCE (1)**Introductory Laboratory for Earth Science**

Exercises on rocks, minerals, stratigraphy, paleontology, mapping and plate tectonics. Normally taken with ESCI 101 or 102 or 108. This lab is recommended before taking advanced courses in Earth science. Instructor(s): *Staff*

ESCI 107 OCEANS AND GLOBAL CHANGE (3)**Oceans and Global Change**

Overview of the impact of the ocean and ocean evolution on the Earth's climate. Includes geological, physical, chemical, and biological aspects of change. Instructor(s): *Droxler, Dickens*

ESCI 108 CRISES OF THE EARTH (3)**Crises of the Earth**

How geological and environmental crises have affected Earth throughout history. Includes meteorite impacts, global extinctions, volcanic eruptions, earthquakes, effect of humans on the environment, as well as an overview of historical perspectives, scientific background, and development of these processes, the development of predictive scenarios, and society's adaptations to such hazards. Co-requisite(s): Recommended ESCI 105. Offered alternate years. Instructor(s): *Leeman, Sawyer*

ESCI 109 OCEANOGRAPHY (3)**Oceanography**

Introduction to the oceans, with an emphasis on how the physics, chemistry, geology, and biology of the oceans are linked. Instructor(s): *Dickens*

ESCI 110 ENERGY, ENVIRONMENT, & SOCIETY (3)**Energy, the Environment, and Society**

Undergraduate seminar on current issues in energy used by industrial society, energy resources and their impact on the environment. Instructor(s): *Lenander*

ESCI 113 ENVIRONMENTAL CRISIS SEMINAR (1)**Environmental Crisis Seminar: Water**

Water is one of the most basic and important components of the environment. But how is the water cycle changing and what are the current issues? We will discuss water from an interdisciplinary perspective, from reservoirs and flow, through life and uses, to pollution and rights. Also offered as ENST 113 and BIOS 113. Instructor(s): *Dickens*

ESCI 202 GEOSCIENCES IN HUMAN AFFAIRS (3)**Geosciences In Human Affairs**

The historical development of geosciences. Application of geophysical methods to learn about the Earth's interior and to explore for oil and other minerals. Instructor(s): *Staff*

ESCI 203 INTRO TO BIO GEO CHEMISTRY (3)**Introduction to Biogeochemistry**

The interaction between (micro) organisms, minerals, rocks, and aqueous solutions is an important new field of research that requires an interdisciplinary approach between (micro) biology, organic chemistry, and geochemistry. The course provides an introduction and insight into this exciting new field and puts an emphasis on quantitative strategies. Instructor(s): *Luttge*

ESCI 214 THE PLANETS (3)**The Planets**

The physical, chemical, and geological development of the solar system from 4.6 billion years ago until today. All planets, their major satellites, comets, and asteroids will be discussed. Instructor(s): *Staff*

ESCI 321 EARTH SYSTEM EVOLUTION/CYCLES (4)**Earth System Evolution and Cycles**

This course introduces the systems and processes that shape Earth's surface including weathering, sediment transport ocean and atmosphere circulation, accumulation of sedimentary material, and organisms, including man. A particular emphasis is placed on how biogeochemical cycles and key interactions link and change systems and processes over space and time. Enrollment limited to 40. Instructor(s): *Anderson, Dickens, Droxler, Lee*

(F) = Fall; (S) = Spring

ESCI 322 EARTH CHEMISTRY & MATERIALS (4)**Earth Chemistry and Materials**

This course introduces rock-forming processes related to the chemical and physical differentiation of the solid Earth into its main reservoirs: continental crust, oceanic crust, mantle, and core. Beginning with the bulk Earth and an overview of the chemical and petrologic properties of the rocks that make up each of these reservoirs. The basic principles of igneous, metamorphic and sedimentary petrology will be presented in the context of the rock cycle, plate tectonics, as well as the origin of economically and societally important ore deposits. A laboratory and field trip, where students will see petrologic principles applied, will be required. Prerequisite(s): Math 101 and 102, CHEM 121 or 151. Instructor(s): *Lee, Leeman, Dickens, Luttge*

ESCI 323 EARTH STRUCTURE & DEFORMATION (4)**Earth Structure and Deformation**

Introduction to the mechanics and deformation of the Earth's crust and lithosphere, emphasizing rock strength and rheology, earthquakes and faulting, brittle, and ductile deformation mechanisms and processes, and an introduction to tectonic systems. Lab will develop skills for recognition, interpretation, and analysis of deformation structures and processes on maps, cross-sections and seismograms. Instructor(s): *Ave Lallemand, Morgan, Gordon*

ESCI 324 EARTH'S INTERIOR (4)**Earth's Interior**

Formation of Earth and solar system, Earth differentiation and geochronology. Structural seismology and the composition of Earth's interior. Density, Earth's gravity, and the geoid. Heat flow and Earth energetics. Earth's core and magnetic field. Mantle convection and plate tectonics. Oceanic and continental crust. Prerequisite(s): MATH 101, MATH 102, PHYS 101 or 111, and PHYS 102 or 112 Instructor(s): *Niu, Sawyer*

ESCI 326 ENVIRONMENTAL GEOLOGY (3)**Environmental Geology**

Course examines interrelations between humans and the geologic environment. Emphasis on geologic processes, hazards, environmental management. Topics include: groundwater, soils, landslides, subsidence, river, coastal & lacustrine environments, earthquakes, and volcanic activity, mineral and energy resources, waste disposal. Course includes local field trips. Instructor(s): *Staff*

ESCI 333 EARTH STRUCT& DEFORM W/OUT LAB (3)**Structural Geology**

Same as ESCI 323 without a lab. Open to nonmajors only. Instructor(s): *Ave Lallemand, Morgan*

ESCI 334 GEOL&GEOPHYSICAL TECHNIQUES (3)**Geological and Geophysical Techniques**

Beginning field techniques taught in the labs and a seven day field excursion during mid-term recess. Instructor(s): *Morgan, Ave Lallemand*

ESCI 353 ENVIRONMENTAL GEOCHEMISTRY (3)**Environmental Geochemistry**

Theories and problems of chemical hazards in the environment due to natural processes, with emphasis on low-temperature aqueous systems. Instructor(s): *Luttge*

ESCI 403 SEMINAR: FACULTY RESEARCH (1)**Seminar: Faculty Research**

Introduction to current research in Earth science. Each faculty member in the department participates by describing his or her research and some of the techniques involved. Instructor(s): *Staff*

ESCI 404 SEM: GRADUATE RESEARCH (1)**Seminar: Graduate Research**

Seminar: Graduate students present thesis research. Instructor(s): *Morgan*

ESCI 405 SEM: CURR RESRCH EARTH SCIENCE (1)**Seminar: Current Research In Earth Science**

A series of lectures on current research in various areas of Earth science. Course may be repeated for credit. Instructor(s): *Staff*

ESCI 406 SEM: CURR RESRCH EARTH SCIENCE (1)**Seminar: Current Research In Earth Science**

A series of lectures on current research in various areas of Earth science. Course may be repeated for credit. Instructor(s): *Staff*

(#) = credit hours per semester

ESCI 408 CURRNT TOPIC CONTINENT TECTONIC (3)**Current Topics In Continental Tectonics**

In depth investigation of selected current research problems in continental tectonics. Course content may vary from year to year depending on interest of students. Instructor(s): *Staff*

ESCI 411 METAMORPHIC PETROLOGY (4)**Metamorphic Petrology**

Evaluation of sub-solidus mineral equilibria through consideration of natural assemblages, thermodynamic calculations, and experiments. Labs will stress thin section petrography. Instructor(s): *Staff*

ESCI 412 ADVANCED PETROLOGY (4)**Advanced Petrology**

Evaluation of the evolution of igneous rocks in the Earth's crust and mantle. Topics will include phase equilibria, experimental studies, and geochemistry. Labs will stress thin section petrography. Instructor(s): *Leeman, Lee*

ESCI 415 ECONOMIC GEOLOGY-PETROLEUM (3)**Economic Geology-Petroleum**

A study of the geology of petroleum: origin, migration, and accumulation will be studied. Government regulation and industry economics will be examined. Instructor(s): *Riese*

ESCI 416 ECON GEOL MINERAL DEPOSITS (3)**Economic Geology Mineral Deposits**

An overview of metallic and nonmetallic mineral deposits, theories of their origin, and classification. The impact of government regulation, economics, production practices, and exploration will be considered. Instructor(s): *Riese*

ESCI 417 PETROLEUM IND ECONOMICS MGMT (3)**Petroleum Industry Economics and Management**

Topics covered include resource size determination; geologic risk analysis; establishing minimum economic thresholds; economic chance factors; the concepts of present worth, investment efficiency, rates of return. Price forecasting, cost inflation are discussed. Instructor(s): *Riese*

ESCI 421 PALEOCEANOGRAPHY (3)**Paleoceanography**

The evolution of the ocean, climate and the global carbon cycle over the last 100 million years as recorded by the biology, chemistry and composition of deep-sea sediment. Prerequisite(s): ESCI 321. Course offered every other year. Instructor(s): *Dickens, Droxler*

ESCI 423 ANTARCTIC MARINE GEOLOGY (3)**Antarctic Marine Geology**

The study of marine geologic principles and processes using examples from the Southern Oceans. Instructor(s): *Anderson*

ESCI 424 EARTH SCIENCE AND THE ENVIRON (3)**Earth Science and the Environment**

Instructor(s): *Luttge*

ESCI 427 SEQUENCE STRATIGRAPHY (3)**Sequence Stratigraphy**

This course will introduce students to the concepts of sequence stratigraphy and the power behind this correlation technique. The course is divided between clastic sequence stratigraphy using cores, well-logs, and outcrop examples and seismic sequence stratigraphy. Instructor(s): *Abreu*

ESCI 428 GEOL INTERP REFLECTION PROFILE (4)**Geologic Interpretation of Reflection Profiles**

Practical application of the reflection seismic method used in the tectonic analysis of deformed belts and sedimentary basins. The course material includes case studies from around the world, with emphasis on the integration of seismic reflection data with other surface and subsurface geological/geophysical information in a regional context. Instructor(s): *Tari*

ESCI 430 TRACE-ELEMENT & ISOTOPE GEOCHEM (3)**Trace-Element and Isotope Geochemistry for Earth and Environmental Science**

Introduction to the principles of trace-element and isotope geochemistry and their applications to high and low temperature processes in the earth. Topics to be covered are trace-element partitioning, basic quantum physics, radiogenic isotopic systems and stable isotope fractionation. Offered every other year. Instructor(s): *Dickens, Lee*

(F) = Fall; (S) = Spring

ESCI 432 MARINE GEOLOGY SYSTEMS (3)**Marine Geology Systems**

This course examines areas of the seafloor recently targeted by large-scale science projects, such as the ocean drilling program. The purpose is to understand current ocean geoscience problems, the research being conducted to address these problems, and preliminary results. Enrollment limited to 10. Offered every other year.

Instructor(s): *Dickens*

ESCI 440 GEOPHYSICAL DATA ANALYSIS (3)**Geophysical Data Analysis: Digital Signal Processing**

Data sampling, aliasing, discrete Fourier transform, digital filter design techniques, z-transform, and discrete Hilbert transform are introduced. Deconvolution, velocity filters, polarization filter, stacking, beam forming and migration techniques will be taught together with their application in geophysical studies. Instructor(s): *Niu*

ESCI 441 GEOPHYSICAL DATA ANALYSIS (3)**Geophysical Data Analysis: Inverse Theory**

Review of linear algebra and probability. Data fitting model parameter estimation, inverse theory, linear and nonlinear methods, and global optimization. Instructor(s): *Zelt*

ESCI 442 EXPLORATION GEOPHYSICS I (4)**Exploration Geophysics I**

Study of the principles and procedures involved in geophysical exploration. Includes acquisition, processing, and interpretation of gravity, magnetic, and seismic data. Instructor(s): *Zelt*

ESCI 444 EXPLORATION GEOPHYSICS II (3)**Exploration Geophysics II**

Experience with processing reflection seismic data. Includes seismic data organization, velocity analysis, stacking, filtering, deconvolution, migration, and display, using the Center for Computational Geophysics facility's ProMax seismic processing system. Instructor(s): *Danbom*

ESCI 450 REMOTE SENSING (3)**Remote Sensing**

Introduction to electromagnetic remote sensing of the earth and other planets using passive and active methods. The course includes a computer lab component involving processing and interpretation of remote sensing imagery, and an individual project. Instructor(s): *Sawyer, Merenyi*

ESCI 451 ANALYSIS OF ENVIRONMENTAL DATA (3)**Analysis of Environmental Data**

Introduction to data display, statistical methods, system simulation, and geostatistics for environmental scientists. The course will emphasize the application of these techniques to real and simulated environmental problems. The lab will involve extensive computer use and the completion of a major individual project on a topic selected by the student. Instructor(s): *Sawyer, Jones*

ESCI 454 GEOGRAPHIC INFORMATION SCIENCE (3)**Geographic Information Science**

Introduction to geographic information systems (GIS) technology, mapping sciences, and spatial analysis. The course will include extensive computer use and the completion of a major individual project on a topic selected by the student. Instructor(s): *Sawyer*

ESCI 458 THERMODYN/KINETICS GEOSCIENTIS (3)**Thermodynamics/Kinetics for Earth Scientists**

Thermodynamics and kinetics for the special needs of Earth scientists covering the basic concepts with respect to geochemical applications, e.g., equilibrium - nonequilibrium concepts, steady state, delta G dependence of reactions, rate models, etc. Instructor(s): *Luttge*

ESCI 460 GEOLOGICAL & GEOPHYSICAL FLUID (3)**Geological and Geophysical Fluid Dynamics**

Advanced Course In the foundations of fluid mechanics and its application to earth science. Aspects of continuum mechanics, heat and mass transfer, and the rheologic behavior of materials will be covered in developing the fundamental laws that describe fluid motion. Applications include atmospheric dynamics, mantle and lithospheric dynamics, and hydrogeology. Prerequisite(s): MATH 211 & MATH 212 Instructor(s): *Lenardic*

ESCI 461 SEISMOLOGY I (3)**Seismology I**

Principles of elastic wave propagation and their application to exploration seismology, the determination of Earth structure, and the understanding of earthquake physics. Instructor(s): *Niu, Zelt*

(#) = credit hours per semester

ESCI 462 TECTONOPHYSICS (3)**Tectonophysics**

Applications of continuum physics to the deformation, flexure, heat transfer, and gravity field of the lithosphere.

Instructor(s): *Gordon*

ESCI 463 ADVANCED STRUCTURAL GEOLOGY I (4)**Advanced Structural Geology I**

Mechanics and deformation of rocks in the brittle regime, i.e., within Earth's shallow crust, with emphasis on large and small scale deformation structures, their origins, and their tectonic settings. Instructor(s): *Ave Lallemand, Morgan*

ESCI 464 GLOBAL TECTONICS (3)**Global Tectonics**

Geometrical aspects of plate tectonics, the 3 traditional types of plate boundaries, instantaneous plate motions, earthquakes and faulting, space geodesy, geomagnetic reversals, paleomagnetic poles, hotspots, "absolute" plate motion, true polar wander, driving forces, diffuse plate boundaries, plate nonrigidity, and rheology of the lithosphere. Instructor(s): *Gordon*

ESCI 466 ADVANCED STRUCTURAL GEOLOGY II (4)**Advanced Structural Geology II**

Mechanics and deformation of rocks in the ductile regime, i.e., within earth's deep crust, and upper mantle with emphasis on large and small scale deformation structures, their origins, and their tectonic settings.

Instructor(s): *Ave Lallemand, Morgan*

ESCI 467 GEOMECHANICS (3)**Geomechanics**

An examination of frictional and brittle deformation processes within earth's shallow crust, with a focus on the principles of rock and sediment mechanics from experiment and theory. Emphasis will be on geologic applications, including sediment compaction, slope failure, fault mechanics, and earthquake nucleation and rupture.

Instructor(s): *Morgan*

ESCI 468 CLIMATE CHANGE & HUMAN CIVIL (3)**Climate Change and Human Civilization**

Paleoscientists have records extending through the Holocene of forcing process, such as climate. We examine these records and their impact on past and present society. We explore the concept of social memory, used to understand how past communities use information about climate change and past responses in long-term adaptive strategies. Also offered as ANTH 468. Instructor(s): *Droxler, McIntosh*

ESCI 471 ISOTOPE GEOLOGY (3)**Isotope Geology**

An introduction to the principles, interpretation and techniques of radiogenic isotope systems. The course will focus on geochronologic applications as well as the use of isotopes in the study of petrogenesis of igneous rocks.

Instructor(s): *Lee*

ESCI 475 PLIO-PLEISTOCENE CLIMATE CHANG (3)**Plio-Pleistocene Climate Change and Hominid Adaptation**

Junctures in the evolution of the hominids appear to coincide with shifts in the Earth's climate record. We will explore the current status of our knowledge of global climate in the Plio-Pleistocene and of the hominid record from the end of the Miocene to the appearance of *H. sapiens*. Also offered as ANTH 475. Instructor(s): *Droxler, McIntosh*

ESCI 481 FALL UNDERGR RESRCH EARTH SCI (HOURS VARIABLE)**Undergraduate Research In Earth Science**

Advanced work adapted to the needs of the individual undergraduate student. May be repeated for credit.

Instructor(s): *Staff*

ESCI 482 SPRING UG RESEARCH EARTH SCI (HOURS VARIABLE)**Undergraduate Research In Earth Science**

Advanced work adapted to the needs of the individual undergraduate student. May be repeated for credit.

Instructor(s): *Staff*

ESCI 491 FALL SPEC STUD FOR UNDERGRAD (HOURS VARIABLE)**Special Studies**

Work in Earth Science adapted to the needs of individual undergraduates. May be repeated for credit.

Instructor(s): *Staff*

ESCI 492 SPRING SPEC STUD FOR UNDERGRAD (HOURS VARIABLE)**Special Studies for Undergraduates**

Work in Earth Science adapted to the needs of individual undergraduates. May be repeated for credit. See ESCI

491. Instructor(s): *Staff*

(F) = Fall; (S) = Spring

ESCI 501 FALL SPECIAL STUDIES GRAD STUD (HOURS VARIABLE)**Special Studies**

Advanced work in Earth science adapted to the needs of individual graduate students. May be repeated for credit.

Instructor(s): *Staff*

ESCI 502 SPRING SPECIAL STUDY GRADUATES (HOURS VARIABLE)**Special Studies For Graduates**

Advanced work in Earth Science adapted to the needs of individual graduate students. See GEOL 501.

Instructor(s): *Staff*

ESCI 504 SILICICLASTIC DEPOSITION SYST (3)**Siliciclastic Depositional Systems**

Study of modern and ancient sedimentary environments with emphasis on field work. Depositional models examined in relation to climatic, oceanographic, and tectonic influences. Instructor(s): *Anderson*

ESCI 505 APPLIED SEDIMENTOLOGY I (3)**Applied Sedimentology I**

Field investigation of sedimentary deposits of northwestern New Mexico to provide students in sedimentology with training in field methods, interpretation of sedimentary deposits, and faces mapping. Instructor(s): *Anderson*

ESCI 506 CARBONATE DEPOSITIONAL SYSTEMS (3)**Carbonate Depositional Systems**

Characterization of modern and ancient, shallow and deep sedimentary environments and faces. Includes examination of different depositional models in relation both to climate and to hydrographic and geographic settings, as well as three field trips. Instructor(s): *Droxler, Dravis*

ESCI 507 SEM: APPLIED SEDIMENTOLOGY II (3)**Applied Sedimentology II**

Advanced field studies in sedimentary geology. This course is intended to provide graduate students with experience working in sedimentary rocks by working on projects of their own design. Instructor(s): *Anderson*

ESCI 508 SEM:DYNAMIC EARTH I:GEOLOGY (3)**Seminar: The Dynamic Earth I: Geology**

Middle school teachers will investigate earth's origin, and the changes in geography, oceans, atmosphere, and life through time. Classroom materials and resource lists will be provided; course content is tied to the TEKS. Field trips focus on local resources. Instructor(s): *Staff*

ESCI 511 SEM:DYNAM EARTH II:OCEAN&ATMOSP (3)**Seminar: Dynamic Earth II: Oceans and Atmosphere**

Middle school teachers will investigate earth's origin, and the changes in geography, oceans, atmosphere, and life through time. Classroom materials and resource lists will be provided; course content is tied to the TEKS. Field trips focus on local resources. Instructor(s): *Staff*

ESCI 512 CARIBBEAN (1)**Caribbean**

Instructor(s): *Ave Lallemand*

ESCI 515 SEM:PUT EARTH SCI INTO ACTION (3)**Seminar: Classroom Earth: Putting Earth Science Into Action**

Middle school teachers encounter discovery based methods for enriching the earth science classroom. Classroom materials and resource lists will be provided; course content is tied to the TEKS. Field trips focus on local resources. Instructor(s): *Staff*

ESCI 516 SEM:CARBONATES & SEA LEV (3)**Sem:Carbonates and Sea Level**

Course offered every other year. Instructor(s): *Droxler*

ESCI 517 SEM:SPEC TOPICS HIGH TEMP (3)**Seminar: Special Topics In High Temperature Geochemistry**

This seminar will cover selected topics and techniques of modern igneous petrology and geochemistry. Weekly meetings will focus on discussion of journal readings and/or data sets to be analyzed. Instructor(s): *Lee, Leeman, Luttge*

ESCI 518 SEM:DYNAMIC EARTH II (3)**Seminar: Dynamic Earth II: Oceanography and Meteorology**

Middle school teachers will investigate earth's origin, and the changes in geography, oceans, atmosphere, and life through time. Classroom materials and resource lists will be provided; course content is tied to the TEKS. Field trips focus on local resources. Instructor(s): *Staff*

(#) = credit hours per semester

ESCI 519 SEM: SEISMOLOGY (3)**Seminar: Seismology**Instructor(s): *Levander***ESCI 520 SEM: SEISMOLOGY (3)****Seminar: Seismology**Instructor(s): *Levander***ESCI 521 SEM: APPLIED MICROPALAEONTOLOGY (3)****Seminar: Applied Micropaleontology**

The course covers the practical application of micro paleontologic data to solve geologic problems, particularly within the petroleum industry at both the exploration and development scale. Instructor(s): *Jones*

ESCI 524 SEM: CLIMATE CONTROL (3)**Seminar: Climate Control on Erosion And Sedimentation**Instructor(s): *Anderson***ESCI 526 SEM: STABLE ISOTOPE GEOCHEMISTRY (3)****Seminar: Stable Isotope Geochemistry****ESCI 527 PRIN&PRAC PETROL GEOCHEM (3)****Principles and Practices of Petroleum Geochemistry In Exploration and Exploitation**

This course focuses on the integration of organic geochemical information into the geologic framework to estimate the quantities of oil and gas available for entrapment within a basin or a series of prospects. Instructor(s): *Bissada*

ESCI 529 SEM: TOPICS MARINE GEOPHYSICS (3)**Seminar: Topics In Marine Geophysics****ESCI 531 SEM: ADV GLOBAL TECTONICS (3)****Seminar: Advanced Global Tectonics**

Topics vary from year to year and include true polar wander, "absolute" plate motions, diffuse plate boundaries, and applications of space geodesy. Instructor(s): *Gordon*

ESCI 532 ADVANCED GLOBAL TECTONICS (3)**Advanced Global Tectonics**

Topics vary from year to year and include true polar wander, "absolute" plate motions, diffuse plate boundaries, and applications of space geodesy. Instructor(s): *Gordon*

ESCI 533 SEM: GLOBAL BIOGEOCHEMICAL CYCLE (3)**Seminar: Global Biogeochemical Cycles**

This course presents the mass, distribution, and fluxes of elements on earth and how natural and anthropogenic forcings can perturb these cycles. Examples include the global cycles of carbon, nitrogen, sulfur, oxygen, and metals. The course will introduce numerical modeling and include an individual student project. Taught alternate years. Enrollment limited to 10. Instructor(s): *Dickens*

ESCI 542 SEISMOLOGY II (3)**Seismology II**

Review of elastodynamics. Calculation of synthetic seismograms for acoustic and elastic media using reflectivity, asymptotic and finite difference methods. Migration of reflection data by finite difference, FK and Kirchhoff methods. Travel time inversion. Instructor(s): *Levander*

ESCI 555 SEM: ADV TOPICS GEOCHEM REACTION (3)**Seminar: Advanced Topics in Geochemistry Reaction**

Study of selected topics in low temperature aqueous geochemistry. Instructor(s): *Luttge, Dickens*

ESCI 562 ADVANCED TOPICS IN GEOPHYSICS (3)**Advanced Topics In Geophysics**Instructor(s): *Lee, Lenardic, Levander, Niu***ESCI 568 STRUCT ANALY DEFORMED ROCKS (4)****Structural Analysis of Deformed Rocks**

Study of structures, textures, and fabrics of deformed rocks. Includes strain and kinematic analysis. Instructor(s): *Ave Lallemant*

ESCI 800 THESIS RESEARCH (HOURS VARIABLE)**Thesis Research**Instructor(s): *Staff*

(F) = Fall; (S) = Spring

FREN (FRENCH STUDIES)

School of Humanities/Center for Study of Languages

FREN 101 ELEMENTARY FRENCH I (5)

Elementary French Language and Culture I

Introductory French. Concentration on all four language skills. Supplemented by work in the Language Resource Center. Section 4 is an intensive course (3 weeks) running from late July to mid-August. Enrollment is limited to 20. Prerequisite(s): No prior knowledge of French. Instructor(s): *Staff*

FREN 102 ELEMENTARY FRENCH II (5)

Elementary French Language and Culture II

Continuation of FREN101. Enrollment is limited to 20. Prerequisite(s): FREN 101, placement exam, or permission of instructor.

FREN 127 IN THE MATRIX (3)

In the Matrix: on Human Bondage and Liberation

Using the film "The Matrix" as a point of reference, this course presents celebrated explorations of servitude and emancipation -- from religious mysticism to Marxism and artistic modernism. Texts by Lao Tzu, Farid ud-Din Attar, Plato, Freud, Marx, Baudelaire, J.S. Mill, Proust, de Beauvoir, Malcom X, Marcuse, Baudrillard. Course taught in English. Enrollment limited to 15 first-year students only, except by permission of the instructor. Also offered as FSEM 127. Course not offered 2004-2005. Instructor(s): *Wood*

FREN 131 NO HAPPY ENDINGS (3)

No Happy Endings: Tragedy in Literature and Film

Tragedy stages the sufferings and fall of a hero. It excites pity and fear. Why, then, do we take pleasure in tragedy? This course explores the importance of tragedy in Western culture through a reading of plays by Sophocles, Shakespeare, Racine, and Ibsen. Films include works by Robinson and Schlöndorff. Also offered as FSEM 131. Course offered Fall 2004. Instructor(s): *Shea*

FREN 201 INTERMEDIATE FRENCH I (4)

Intermediate French Language and Culture I

Communication based course. Focuses on the functional use of the language through linguistic, sociocultural and situational contexts. Develops all four language skills (listening, speaking, reading, writing). Prerequisite(s): FREN 102, placement exam, or permission of instructor. Instructor(s): *Staff*

FREN 202 INTERMEDIATE FRENCH II (4)

Intermediate French Language and Culture II

Continuation of FREN 201. Prerequisite(s): FREN 201, placement exam, or permission of instructor.

FREN 214 LANG OF SCI & TECH IN FRANCE (4)

Language of Science and Technology in France

Three week intensive course taught in May in Grenoble France. Open to any students interested in French language and culture used in technical environment. Proficiency- based instruction. Requires separate registration with the office of International programs. See <http://www.ruf.rice.edu/~abroad> Prerequisite(s): FREN 202 and permission of instructor Requires separate registration with office of international programs. See www.ruf.rice.edu/~abroad/. Instructor(s): *Staff*

FREN 220 INTRO NOVEL WRITTEN IN FRENCH (3)

Introduction to the Novel Written In French

Taught in translation. Study of the novel from the 17th century to the present in France, Africa and the Caribbean. Includes explorations of personhood, sexuality, modern capitalism and imperialism. Texts by Mme de Lafayette, Marquis de Sade, Balzac, Flaubert, Proust, Colette, Sartre, Condé, Cheikh Hamidou Kane, Robbé-Grillet. Taught in English. Also offered HUMA 220. Course not offered 2004-2005 Instructor(s): *Wood*

FREN 221 PROBLEMS IN CONTEMP FRENCH SOC (3)

Problems In Contemporary French Society

This course aims to give students an understanding of French Civilization through exploration of the social, cultural, and political issues that define France today. Course offered Fall 2004. Instructor(s): *Fette*

FREN 301 ADV WRITTEN ORAL FRENCH (3)

Advanced French for Written and Oral Communication

Aimed at developing competence in oral and written expression, with the special emphasis on stylistic variations, lexical nuances, and complex grammatical structures. Drawing on literary and journalistic sources, students will practice different styles of writing. Besides working on an individual project, students will create a collective story of their own invention. Instructor(s): *Staff*

(#) = credit hours per semester

FREN 311 PRE-REV FRENCH LIT (3)**Major Literary Works and Artifacts of Pre-Revolutionary France**

Study of French culture, literature, and artifacts from the Middle Ages until the Revolution. Course conducted entirely in French. Prerequisite(s): FREN 202 or placement exam or AP credit or permission of instructor. Course offered Fall 2004. Instructor(s): *Nelson-Campbell*

FREN 312 POST-REV FRENCH LIT (3)**Major Literary Works and Artifacts of Post-Revolutionary France: The Romantic Legacy**

Fall Semester: Study of 19th- and 20th-century fiction through the special lens of the Romantic imagination. Readings from Chateaubriand, Desbordes-Valmore, Claire de Duras, Musset, Hugo, Baudelaire, Flaubert, Proust, Prévert, and the new novelists. Emphasis on discussion and close textual analysis, all in French. Prerequisite(s): FREN 202 or placement exam or AP credit or permission of instructor.

Spring Semester: French literature and cinema- from romanticism to postmodernity. The rise of capitalism, imperialism, globalization; romantic love and artistic ecstasy as attempts to deal with the "death of God"; can we distinguish "great works" from mere entertainment or "cultural constructions?" Prerequisite(s): FREN 202 or placement exam or AP credit or permission of the instructor. Course offered Spring 05. Instructor(s): Wood

FREN 318 STRUCTURE OF FRENCH (3)**Structure of French**

The primary objective of this course is to present contemporary French as a dynamic linguistic system shaped by historical, cognitive and sociological developments. Beyond the specific consideration of French, this course is concerned with the historical, psychological, and sociological dimensions that enter into the description of any language. Also offered as LING 318. Prerequisite(s): FREN 202 or placement exam or AP credit or permission of instructor. Course offered Fall 04. Instructor(s): *Achard*

FREN 319 FRNCH & FRANCOPHONE WOMEN WRITERS (3)**French and Francophone Women Writers**

An examination of selected French and Francophone women writers from the Middle Ages to the present. We will pay particular attention to the intersections of gender, race, ethnicity, nationality, sexuality and class as they emerge in the literary text. Also offered as WGST 319. Course not offered 2004-2005. Instructor(s): *Huffer*

FREN 332 FRENCH PHONETICS (3)**French Phonetics**

Contrastive analysis of the French sound system including key areas as diction and articulation of French speech with emphasis on class as well as laboratory practice. Prerequisite(s): FREN 202 or placement exam or AP credit or permission of instructor. Course not offered 2004-2005. Instructor(s): *Achard*

FREN 336 WRITING WORKSHOP (3)**Writing Workshop**

The course will focus on the practice of writing as a discursive discipline. It will also closely examine, from both a stylistic and rhetorical point of view, creative and critical prose by Barthes, Djebbar, Sarraute, and others. Required of majors. Open to non-majors if space is available. Prerequisite(s): FREN 311 or 312 or placement exam or AP credit or permission of instructor. Course offered Spring 2005. Instructor(s): *Shea*

FREN 340 EXOTICISM IN THE ENLIGHTENMENT (3)**Exoticism in the Enlightenment**

This course will focus on French representations of the Orient and the Pacific in the eighteenth century. Readings include novels, travel journals and essays by Montesquieu, Rousseau, Diderot, and Bougainville, among others. We will conclude the course by turning to the nineteenth century and the paintings of Gauguin and Delacroix. Prerequisite(s): FREN 311 or 312 or placement exam or AP credit or permission of the instructor. Not offered 2004-2005. Instructor(s): *Shea*

FREN 350 CULTURE & COMMUNICATION: PARIS (3)**Culture and Communication: Paris**

Overview of the history of Paris both as a city and a capital and as a cultural, intellectual, and economic center through a study of texts, music, and films. Equal emphasis will be placed on language skills and content. Prerequisite(s): FREN 202 or placement exam or AP credit or permission of instructor. Course offered Fall 2004. Instructor(s): *Nelson-Campbell*

FREN 351 CULTURE & COMMUNICATION (3)**Culture and Communication: Provinces of France**

Overview of the amazing diversity in the history, languages, economic bases, traditions, and cultures of the original provinces in order to arrive at a better understanding of France as it exists today. Includes texts, music, and films. Equal emphasis will be placed on language skills and content. Prerequisite(s): FREN 202 or placement exam or AP credit or permission of instructor. Course offered Spring 2005. Instructor(s): *Nelson-Campbell*

(F) = Fall; (S) = Spring

FREN 355 MODERN SHORT FICTION (3)**Modern American and European Short Fiction**

Discussion course with emphasis on close reading as we talk about alienation and the modern period, about death, violence, and sexuality, and about the "ethics" of fiction generally. Selected critical essays will complement readings from Melville, Flaubert, Mann, Maupassant, Gogol, Chekhov, Gilman, Kafka, O'Connor, Carver, and García-Márquez. Also offered as ENGL 355. Course not offered 2004-2005. Instructor(s): *Harter*

FREN 373 QUEBEC, P.Q., CANADA (3)**Quebec, P.Q., Canada**

A group project, the class will attempt to define Quebec's unique status through student-selected topics such as immigration, plurilingualism, national sovereignty, cultural production, and the like. The course will cover literature and visual texts (fine arts, cinema) as well as historical and political ones, while simultaneously fostering the oral and written practice of French. Prerequisite(s): FREN 202 or placement exam or AP credit or permission of instructor. Course not offered 2004-2005. Instructor(s): *Aresu*

FREN 387 IMAGES OF CONTEMPORARY FRANCE (3)**Images of Contemporary France**

The course will deal with the sociopolitical and intellectual history of post-war France. We will cover the advent of the Fifth Republic, decolonization, May '68 and political dissent, modernization and the postmodern condition, and France and the construction of Europe. Texts by Borne, Edmiston, and Duménil. Prerequisite(s): FREN 311 or 312 or placement exam or AP credit, or permission of instructor. Course not offered 2004-2005. Instructor(s): *Goux*

FREN 401 TRANSLATION (3)**Translation**

Exploration of the theory and practice of translation. Includes translation of modern texts from and into English. Prerequisite(s): Placement exam, or AP credit, or permission of instructor. Course not offered 2004-2005. Instructor(s): *Staff*

FREN 403 SPECIAL TOPICS (3)**Special Topics**

Topics may vary. Please consult with the department for additional information. Course not offered 2004-2005. Instructor(s): *Staff*

FREN 407 FRENCH CINEMA: PARIS-HOLLYWOOD (3)**French Cinema: Paris-Hollywood**

Introduction to French cinema. We will study the development of French cinema, with particular attention to the relationship between French film and Hollywood. Films include works by Renoir, Bresson, Cluzot, Truffaut, Godard, Tati, Varda, Kieslowski. Course offered Spring 2005. Instructor(s): *Shea*

FREN 410 IMAGE OF THE MEDIEVAL WOMEN (3)**The Literary and Historical Image of the Medieval Woman**

Comparison and contrast of the presentation of the medieval woman in literature with extant evidence of historical women from contemporary documents and records. Also offered as MDST 410 and WGST 410. Prerequisite(s): FREN 311 or 312 or AP credit or permission of the instructor. Not offered 2004-2005. Instructor(s): *Nelson-Campbell*

FREN 414 MEDIEVAL SAINTS & SINNERS (3)**Literature and Culture of Middle Ages: Saints and Sinners**

Study of medieval French works that depict saints and sinners with the goal of assessing the cultural structure that sets the limits of these labels. Also offered as MDST 414. Prerequisite(s): FREN 311 or 312 or AP Credit or permission of the instructor. Course not offered 2004-2005. Instructor(s): *Nelson-Campbell*

FREN 415 COURTLY LOVE MEDIEVAL FRANCE (3)**Courtly Love in Medieval France**

Study of the Occitan and Old French poetry that served as the source of the kind of love that came to be called "Amour courtois" in the nineteenth century. Also offered as MDST 415. Prerequisite(s): FREN 311 or 312 or AP credit or permission of the instructor. Course not offered 2004-2005 Instructor(s): *Nelson-Campbell*

FREN 416 LIT & CULTURE OF MIDDLE AGES (3)**Literature and Culture of the Middle Ages: King Arthur**

Examination of the origins of the legend of King Arthur and reasons for its popularity, particularly in literature of the French Middle Ages but also in other medieval literatures of Western Europe. Includes discussion of the legend's influence in diverse areas even in modern times. Also offered as MDST 436 Prerequisite(s): FREN 311 or 312 or AP credit or permission of the instructor. Course not offered 2004-2005. Instructor(s): *Nelson-Campbell*

(#) = credit hours per semester

FREN 423 MODERN FRENCH PAINTERS/WRITERS (3)**Modern French Painters and Their Writers**

Fascinated by painting, modern and contemporary writers have produced significant literary commentaries that reveal affinities with painters whose artistic "questioning" they shared. In this course we will study some of the encounters between these painters and their writers. Among them: Picasso (commented by Apollinaire, Cocteau, Breton, Soller), Braque (commented by Ponge, Paulhan, Malraux, Saint John Perse), and others. Prerequisite(s): FREN 311 or 312 or AP credit or permission of the instructor. Course offered Spring 2005. Instructor(s): *Goux*

FREN 430 17TH CENTURY (3)**17th Century**

Thematic approach to examining the main political, religious, philosophical, and literary discourses of the golden age of absolutism. Prerequisite(s): 311 or placement exam or AP credit or permission of the instructor. Course not offered 2004-2005. Instructor(s): *Staff*

FREN 434 FRENCH FEMINIST THEORY (3)**French Feminist Theory**

The purpose of this course is to gain a broad understanding of the important problems of contemporary feminist theories in French. We will focus on the interrelated issues of gender, sexuality, race, ethics, language, and power by exploring in depth primary texts in feminist theory. Also offered as WGST 434. Course not offered 2004-2005. Instructor(s): *Huffer*

FREN 450 TOPICS IN 19TH CENTURY LYRIC (3)**Topics in 19th Century Lyric**

Study of the poetry and prose poetry of the 19th century from the Romantic period to the Symbolist era, through such writers as Desbordes-Valmore, Lamartine, Musset, Vigny, Hugo, Nerval, Baudelaire, Verlaine, Rimbaud, and Mallarmé. Prerequisite(s): 311 or 312 or placement exam or AP credit or permission of the instructor. Course not offered 2004-2005. Instructor(s): *Harter*

FREN 453 IMMIGRATION AND CITIZENSHIP (3)**Immigration and Citizenship in Contemporary France**

This course examines the impact of immigration on contemporary French society and analyzes debates over citizenship, integration, and multiculturalism. Prerequisite(s): FREN 311 or 312 or placement exam or AP credit or permission of the instructor. Course offered Fall 2004. Instructor(s): *Fette*

FREN 459 FREN THEATR: CORNEILLE-SARTRE (3)**Masterpieces of French Theater, from Corneille to Sartre**

The course will cover literary, aesthetic, and historical developments in French theater, from the 17th to the 20th centuries (Corneille, Racine, Molière, Beaumarchais, Hugo, Musset, Feydeau, Rostand, Giraudoux, Anouilh, and Sartre). Course not offered 2004-2005. Instructor(s): *Staff*

FREN 460 WOMEN'S VOICES IN FREN LIT (3)**Women and Women's Voices in French Literature**

Examination of the ways in which women have been represented in fiction, by themselves and by others, since the early modern period. Readings from Mme de Lafayette, Graffigny, Baudelaire, Sand, Villers de l'Isle-Adam, Beauvoir, Duras, and Wittig, with emphasis on the constitution of "the feminine" in literary texts as a cultural, historical, and social artifact. Also offered as WGST 412. Prerequisite(s): FREN 311 or 312 or AP credit or permission of the instructor. Course not offered 2004-2005. Instructor(s): *Harter*

FREN 467 POSTMOD BREAK FREN PHILOSOPHY (3)**Postmodern Break in French Philosophy**

A study of the questioning of philosophical modernity (starting with Descartes and the Enlightenment philosophers) by structuralist and poststructuralist thinkers and theorists of the postmodern condition. Among contemporary authors studied will be Lacan, Derrida, Foucault, Lyotard, and others. Prerequisite(s): 311 or 312 or placement exam or AP credit or permission of instructor. Course not offered 2004-2005. Instructor: *Goux*

FREN 473 HIST & CULT MODERN QUEBEC (3)**History and Culture of Modern Quebec**

On the history and culture of Québec from the 18th century to the present, the seminar also examines issues of language cultural identity. It will include such figures as Hémon, Carrier, Godbout, Maillet, and Hébert (literature); Pellán, Riopelle, and Bourduas (art); and Jutra and Arcand (cinema). Course not offered 2004-2005. Instructor: *Aresu*

(F) = Fall; (S) = Spring

FREN 480 JEAN COCTEAU; POET, NOVELIST (3)**Jean Cocteau: Poet, Novelist, Film-Maker**

Poet, novelist, playwright, essayist, painter, Jean Cocteau (1889-1963) a protean creator, was also the first French writer to become a famous film-maker. During his career, J. Cocteau was close to most of the avant-garde movements of this time: Cubism, Dadaism, surrealism. The goal of this course is to discover the various aspects of this multi-faceted work, where cinema and poetry meet under the sign of Orpheus. Enrollment limited to 20. Prerequisite(s): FREN 311 or 312 or placement exam or AP. Course offered Fall 2004. Instructor(s): *Goux*

FREN 482 DISCOURSE OF DISSIDENCE (3)**Discourse of Dissidence**

Undergraduate version of FREN 582. Enrollment limited to 12. Prerequisite(s): FREN 311 or 312 or AP credit or permission of the instructor. Course not offered 2004-2005. Instructor: *Aresu*

FREN 487 20 CENT NOVEL IN FRENCH (3)**Twentieth-Century Novel In French**

This course will explore the construction of the modern self in a variety of French and Francophone novels of the twentieth century. Topics will include the relationship between the self and narrative form; the role of memory; violence and representation; and the construction of gender, sexuality, nationality and race. Prerequisite(s): FREN 311 or 312 or AP credit or permission of the instructor. Course not offered 2004-2005. Instructor(s): *Huffer*

FREN 493 PROBLEMATICS OF FRENCH 19TH CE (3)**Problematics of French Nineteenth-Century Fiction**

Transformations of the formal characteristics of fiction in France as problematic engagements with the evolution of art, capitalism, the family, the sacred, subjectivity, etc. Texts: Balzac: *Le père Goriot*, *La fille aux yeux d'or*; Stendhal: *la chartreuse de Parme*; Flaubert: *L'Education sentimentale*; Maupassant: *Boule de Suif*; Zola: *Germinal*. Prerequisite(s): FREN 311 or 312 or permission of the instructor. Course not offered 2004-2005. Instructor(s): *Wood*

FREN 500 THESIS RESEARCH (MA) (HOURS VARIABLE)**Thesis Research (MA)**

No description. Course not offered 2004-2005. Instructor(s): *Staff*

FREN 503 SPECIAL TOPICS (3)**Special Topics**

Topics may vary. Please consult department for additional information. Course not offered 2004-2005.

FREN 504 BEGINNINGS OF FR LANG/LIT (3)**Beginnings of the Language and Literature of France**

This course includes an external history of the French language, an examination of hagiographic literature and the chanson de geste in their cultural and artistic contexts, as well as a bibliographic component to acquaint the students with library tools available for research emphasizing medieval resources but not excluding those for later periods. Students will acquire a reading knowledge of Old French. Course not offered 2004-2005. Instructor(s): *Nelson-Campbell*

FREN 510 IMAGES OF THE MEDIEVAL WOMAN (3)**The Literary and Historical Image of the Medieval Woman**

Comparison and contrast of the presentation of the medieval woman in literature with extant evidence of historical women from contemporary documents and records. Also offered as MDST 411. Course not offered 2004-2005. Instructor(s): *Nelson-Campbell*

FREN 515 COURTLY LOVE /MEDIEVAL FRANCE (3)**Courtly Love in Medieval France**

Study of the Occitan and Old French poetry that served as the source of the kind of love that came to be called "Amour courtois" in the nineteenth century. Also offered as MDST 425. Course not offered 2004-2005. Instructor(s): *Nelson-Campbell*

FREN 534 FRENCH FEMINIST THEORY (3)**French Feminist Theory**

The purpose of this course is to gain a broad understanding of the important problems of contemporary feminist theories in French. We will focus on the interrelated issues of gender, sexuality, race, ethics, language, and power by exploring in depth primary texts in feminist theory. Course will be offered in translation. Course not offered in 2004-2005. Instructor(s): *Huffer*

FREN 540 WHY SADE? (3)**Why Sade?**

Why read Sade today? Has the myth of the divine Marquis run its course? Readings by Sade, Diderot, Rousseau, Laclos, Bataille, Blanchot, Klossowski, and Beauvoir. Films include *Quills*, *Marat/Sade* and *L'Age d'or*. Course not offered 2004-2005. Instructor(s): *Shea*

(#) = credit hours per semester

FREN 541 LITERARY CYNICISMS (3)**Literary Cynicisms**

This course explores the legacy of Cynic philosophy in France, from the Renaissance through the eighteenth century. Readings include works by Montaigne, Rabelais, La Rochefoucault, Voltaire and Diderot, as well as theoretical texts by Sloterdijk, Foucault and Derrida. Course offered Fall 2004. Instructor(s): *Shea*

FREN 549 NATL ID & PBL MEMORY IN FRENCH (3)**National Identity and Public Memory In French Society**

This course identifies events, symbols, and shared experiences which constitute collective French memory and examines how public memory has shaped national identity in contemporary France. Course offered Spring 2005. Instructor(s): *Fette*

FREN 555 BALZAC, STENDHAL, FLAUBERT, ZOLA (3)**From Nostalgia to Hysteria: Balzac, Stendhal, Flaubert, Zola**

Study of 19th-century fiction through its discourses of displacement, its depiction of nostalgia and of "homelessness" in the first half of the century and of the crowd, the flâneur, and hysteria in the second. Readings in lyric, short fiction, the novel, and in critical theory. Course not offered 2004-2005. Instructor(s): *Harter*

FREN 559 FR THEATER-CORNEILLE - SARTRE (3)**Masterpieces of French Theater from Corneille to Sartre**

The course will cover literary, aesthetic, and historical developments in French theater, from the 17th to the 20th centuries (Corneille, Racine, Molière, Beaumarchais, Hugo, Musset, Feydeau, Rostand, Giraudoux, Anouilh, and Sartre. Course not offered 2004-2005. Instructor(s): *Staff*

FREN 561 MODERN FRENCH SEXUALITIES (3)**Modern French Sexualities**

This course will explore the representation of sexuality in French novels and films from the early 20th century to the present. Primary readings will be supplemented by medical, philosophical, juridical, and psychoanalytic contributions to debates about sexuality in the modern period. Course not offered 2004-2005. Instructor(s): *Huffer*

FREN 564 LITERATURE AND PSYCHOANALYSIS (3)**Literature and Psychoanalysis**

Exploration of the ways in which literature and psychoanalysis have seemed most fruitfully to inform each other. Readings in primary literature as well as in Freud, Lacan, Cixous, Lacoue-Labarthes, Silverman, Jameson, Felman, and Bersani. Course not offered 2004-2005. Instructor(s): *Harter*

FREN 565 SURREALIST & AVANT-GARDE NARRA (3)**Surrealist and Avant-Garde Narratives**

The avant-garde and the logic of capitalism. The post-romantic precursors and the rise of a sacred and transgressive Art (Baudelaire, Mallarmé, Rimbaud, Lautréamont, de Nerval). Ecstasy beyond the constructed subject: Breton, Artaud, Bataille, Aragon. Course not offered 2004-2005. Instructor(s): *Wood*

FREN 566 THE NARRATIVES & THE OTHER ART (3)**The Narrative and The Other Arts**

The seminar will focus on the aesthetic and ideological interplay between literature and the other arts. Figures and topics will include: neoclassical poetry and painting; Diderot's *Salon*, and Gauguin's Tahiti; Baudelaire's art criticism; Delacroix, Chassériau, Fromentin, Djebar, and French Orientalism; Cocteau, or the poet as film-maker, Simon and the Baroque; Robbe-Grillet, Duras, and the cinema; Ben Jelloun and Giacometti. Course not offered 2004-2005. Instructor(s): *Aresu*

FREN 567 POSTMODERN FRENCH PHILOSOPHY (3)**The Postmodern Break In French Philosophy**

Study of the questioning of philosophical modernity (starting with Descartes and the Enlightenment philosophers) by structuralist and poststructuralist thinkers and theorists of the postmodern condition. Emphasis on the conflict between humanism and anti-humanism. Includes Derrida, Foucault, Lyotard, Levinas, Castoriadis, and others. Course not offered 2004-2005. Instructor(s): *Goux*

FREN 568 FRENCH PHILOSOPHY (3)**French Philosophy**

Survey of moral philosophy from Descartes to today, exploring the relationship between the individual and society, the problem of freedom and values, questions of universality, humanism, the important moments of the constitution and deconstitution of the subject. Includes Philosophy of Descartes, Rousseau, Condorcet, Comte, Guyau, Durkheim, Fouillée, Bergson, Sartre, Foucault, and others. Course not offered 2004-2005. Instructor(s): *Goux*

(F) = Fall; (S) = Spring

FREN 570 VERSIONS OF OEDIPUS (3)**Versions of Oedipus**

Through the myth, the tragedies, the complex, the Greek figure of king Oedipus has haunted our literary imagination, troubled our philosophical thought, and nourished our psychoanalytical investigation. This seminar explores this well-known figure in French modern playwrights who revisited this tragic character, as well as in the various philosophical and theoretical interpretations of the myth and its ramifications. Course offered Spring 2005.

Instructor(s): *Goux*

FREN 572 PROUST (3)**Proust**

Extensive close textual readings and broad-ranging meditations on the meaning of "À la recherche du temps perdu" in terms of the history of artistic modernism and social modernity. Taught alternately in French and English. Course not offered 2004-2005. Instructor(s): *Wood*

FREN 574 ESTHETICS & POLITICS OF FRAN (3)**Esthetics and Politics of Francophonie**

The seminar focuses on various expressions of "francophone" as a both legitimated and contested construct of cultural and political identity. Encompassing a plurality of geo-cultural areas, topics range from "Légitime défense" to négritude, postcolonialism, antilleanness, creoleness, québecitude, and transnationalism. Course not offered 2004-2005. Instructor(s): *Aresu*

FREN 578 CONTEMPORARY FRENCH THOUGHT (3)**Contemporary French Thought: Toward a Symbolic Economy**

Exploration of the idea of a "symbolic economy" that transforms notions of production, exchange, and consumption in anthropology, semiotics, psychoanalysis, and literature. Includes Mauss and Levi-Strauss (on "exchange of goods, words, and women"), later developments of Bataille, Lacan, Baudrillard, Irigaray, and the theory and practice of "economic criticism" (e.g., Balzac, Zola, Gide). Course not offered 2004-2005. Instructor(s): *Goux*

FREN 579 MRX, BTILLE, BDRILLD, PTMDRNTY (3)**Marx, Bataille, Baudrillard, Postmodernity**

Taught in English. Exploration of the shift from a Marxist political economy of class struggle, through Bataille's "general economy" (economic activity as a "cosmic phenomenon") to Baudrillard's "indetermination of the code" and "simulation" in postmodernity. Texts by Marx, Mauss, Bataille, Athusser, Ernest Mandel, and Baudrillard. Instructor(s): *Wood*

FREN 580 GILLES DELEUZE (3)**Gilles Deleuze**

This course provides an advanced introduction to Deleuze's work, from the earliest writings to the final period. Emphasis: Deleuze's relation to the philosophical tradition, his differences from and similarities to other French "poststructuralists," and the uses to which his work has been put by others. Taught in English. Course not offered 2004-2005. Instructor(s): *Wood*

FREN 581 FRENCH THEORY: GILLES DELEUZE (3)**Contemporary French Theory: The Case of Gilles Deleuze**

Continuation of FREN 580. Course not offered 2004-2005. Instructor(s): *Wood*

FREN 582 DISCOURSES OF DISSIDENCE (3)**Discourses of Dissidence**

The seminar reflects on the concept of dissidence—a political, but esthetic and epistemological one as well, through several literary and artistic figures, as well as genres and periods, from Francois Villon to the present (Montaigne, La Rochefoucauld, Rousseau, de Gouges, Rimbaud, Gauguin, Breton, Genet, Magritte, Ducharme, Godard, Jelloun, Arcand). Course offered Fall 2004. Instructor(s): *Aresu*

FREN 584 AESTHETIC THEORIES (3)**Aesthetic Theories of Modernism and Postmodernism**

Exploration of such artistic and literary movements as Cubism, Dada, Surrealism, "Refus Global," "Lettrisme," "Situationnisme," "Oulipo," "Tel Quel," and "Les Perpendiculaires." How does one define the "avant-gardes?" Course offered Fall 2004. Instructor(s): *Goux*

FREN 585 NOVEL FROM BELLE EPOQUE TO 1950 (3)**Novel from Belle Epoque to 1950**

Survey of the evolution of the novel and the vicissitudes of the modern subject and identity. Includes Proust, Gide, Malraux, Drieu la Rochelle, de Beauvoir, Sartre, Genet, Camus, and Sarraute. Course not offered 2004-2005.

Instructor(s): *Wood*

(#) = credit hours per semester

FREN 586 AESTHETICS OF THE FRAGMENTARY (3)**Aesthetics of the Fragmentary**

Course not offered 2004-2005. Instructor(s): *Huffer*

FREN 587 20TH CENTURY NOVEL IN FRENCH (3)**20th Century Novel In French**

This course will explore the construction of the modern self in a variety of French and Francophone novels of the twentieth century. Topics include relationship between the self and narrative form; the role of memory; violence and representation; and the construction of gender, sexuality, nationality and race. Course not offered 2004-2005.

Instructor(s): *Huffer*

FREN 600 INDEPENDENT STUDY (HOURS VARIABLE)**Independent Study**

Permission of instructor. Course offered Fall 2004 and Spring 2005. Instructor(s): *Staff*

FREN 800 THESIS RESEARCH (PHD) (HOURS VARIABLE)**Thesis Research PhD**

Course offered Fall 2004 and Spring 2005. Instructor(s): *Staff*

FSEM (FRESHMAN SEMINAR)**School of Humanities/Humanities Division****FSEM 101 SOCRATES (3)****Socrates: The Man and His Philosophy**

This discussion-style seminar will consider how Socrates practiced philosophy, how Plato represented Socrates and Socratic philosophy in writing, and what effect Socrates had on Athens and his fellow Athenians. Readings will consist mainly of Plato's Socratic dialogues, with emphasis on the *Apology* and *Gorgias*. In addition to papers, each participant will make one presentation and lead one discussion. Also offered as CLAS 101. Enrollment limited to 15. Course not offered 2004-2005. Instructor(s): *Yunis*

FSEM 110 LITERATURE AND DEMOCRACY (3)**Literature and Democracy**

Course examines how writers respond to the developments and problems of democratic societies. Topics include: civil disobedience and just dissent; the civil war and the extension of the franchise; cruel and unusual punishment exercised by governments; and the relationship between privacy and individuality. Requirements: two essays and one class presentation. Also offered as HUMA 110. Instructor(s): *Wibl*

FSEM 121 FROM KAFKA TO THE HOLOCAUST (3)**From Kafka to the Holocaust: Discourse In Alienation**

The beginnings of modernity have to be seen in the context of the sociopolitical and intellectual upheavals at the end of the 19th century. Whereas extreme reactionism eventually led to fascism, progressive literature advocated artistic experimentation as manifested in a discourse of alienation (expressionism, dada, Kafka). Holocaust literature reflects the ultimate clash between progressiveness and reactionism. The primary readings will be from Wedekind, Trakl, Kaiser, Hesse, Remarque, Brecht, Celan, Werfel. Taught in English. Also offered as GERM 121. Course not offered 2004-2005. Instructor(s): *Weissenberger*

FSEM 122 HISTORY THROUGH GERMAN CINEMA (3)**History Through German Cinema**

The course presents an overview of German history via contemporary German feature films from World War I, through the Weimar and Nazi periods, the postwar years as a Divided Germany into East and West and finally a look at the new generation in Post-unification Germany. Taught in English. All films are subtitled in English. Also offered as GERM 122. Instructor(s): *Eifler*

FSEM 123 FRANCOPHONE (3)**The Creativity of Francophone Cinema: Challenging the Hollywood Empire**

A fundamentally non-commercial conception of cinema inherited from France allows Francophone directors to voice their otherwise silenced cultures. The 12 recent Francophone movies selected expose students to unconventional Western or non-Western images. Taught in English, all films subtitled in English and screened during class. Also offered as FREN 123. Enrollment limited to 15. Course not offered 2004-2005

FSEM 124 LAW, MORALITY, AND SOCIETY (3)**Law, Morality, and Society**

A historical introduction to central themes of legal and political thought in the Western tradition from Immanuel Kant to John Rawls, this freshman seminar provides an overview of trends and controversies in modern political thought and society. Topics discussed include "civil rights", "morality", "liberalism", "natural law", "political theology", and "freedom". Taught in English. Also offered as GERM 124. Course not offered 2004-2005. Instructor(s): *Emden*

(F) = Fall; (S) = Spring

FSEM 125 BTW RESISTANCE & COLLABORATION (3)**Between Resistance and Collaboration: Individuals Responding to National Socialism**

Focus on individuals' behavior in Nazi Germany/Austria. Issues of ideology and ethics as Germans and Austrians faced them between 1933-1945. Reflection on values such as courage, civil disobedience, and human rights in today's global society. Taught in English. Also offered as GERM 125. Instructor(s): *Kecht*

FSEM 126 LEGEND OF KING ARTHUR (3)**The Legend of King Arthur In the Middle Ages**

In the 1100's people began writing down stories of Arthur, Guinevere, Merlin, and the Knights of the round table using sophisticated techniques of literary composition. Today, these stories count among the great writings of Europe. This course examines the spectrum of medieval stories and histories of Arthur that arose in England, France, and Germany from the beginning to the age of printing, plus some recent revivals. Also offered as GERM 126 and MDST 126. Instructor(s): *Westphal*

FSEM 127 IN THE MATRIX (3)**In The Matrix: On Human Bondage and Liberation**

Using the film *The Matrix* as a point of reference, this course presents celebrated explorations of servitude and emancipation -- from religious mysticism to Marxism and artistic modernism. Texts by Lao Tzu, Farid ud-Din Attar, Plato, Freud, Marx, Baudelaire, J.S. Mill, Proust, de Beauvoir, Malcom X, Marcuse, Baudrillard. Course taught in English. Enrollment limited to 15 first-year students only, except by permission of the instructor. Also offered as FREN 127. Course not offered 2004-2005. Instructor(s): *Wood*

FSEM 128 THE CULTURE OF WAR (3)**The Culture of War**

Focusing on the experience and representation of war in German and European literature, theory, and visual arts. Covers the period from 17th-20th century. Special emphasis on the First World War. Not for the faint-hearted, topics included: destruction, ruins, refugees, massacres, terrorism, victims, spaces of battle, the logic of war. Taught in English. Also offered as GERM 128. Instructor(s): *Emden*

FSEM 129 LITERARY LOVE AFFAIRS (3)**Literary Love Affairs, Love and Passion In European Literature**

Love-stories are usually about a young man who seeks the ideal girl, finally gets her, and becomes as good a Philistine as others. Students examine this philosophical wisdom by reading stories and theoretical texts about love and passion by European authors from the time of Shakespeare to the present. Enrollment limited to 15. Also offered as GERM 129. Instructor(s): *Steiner*

FSEM 131 TRAGEDY IN LITERATURE AND FILM (3)**No Happy Endings: Tragedy In Literature and Film**

Tragedy stages the sufferings and fall of a hero. It excites pity and fear. Why, then, do we take pleasure in tragedy? This course explores the importance of tragedy in Western culture through a reading of plays by Sophocles, Shakespeare, Racine, and Ibsen. Films include works by Robinson and Schlöndorff. Also offered as FREN 131. Instructor(s): *Shea*

FSEM 144 ARAB-ISRAELI CONFLICT (3)**The Arab-Israeli Conflict**

Seminar traces the history and politics of the Arab-Israeli conflict, delving into both Palestinian and Israeli understandings of the past and present using books, documentaries, and films. The course seeks to understand how and at what costs Israeli and Palestinian nationalism's have been constructed and analyzes U.S. involvement in the conflict. Limited enrollment. Also offered as HIST 144. Instructor(s): *Makdisi*

FSEM 150 LAT AMER SHORT FICT (3)**Latin American Short Fiction (Emphasis on Borges and Cortazar)**

Readings of classic works of short fiction by modern Latin American masters, with special emphasis on the stories of Jorge Luis Borges and Julio Cortazar. Close reading, interpretive essays. Taught in English. Open to first-year students only. Also offered as SPAN 150. Enrollment limited to 15. *Kauffman*

FSEM 151 THE HERO & HIS COMPANION (3)**FSEM 152 THE MODERN HISPANIC ESSAY (3)****The Hispanic Essay**

Readings (in English translation) from major modern Spanish and Spanish-American essayists, including Miguel de Unamuno, Jose Ortega y Gasset, Maria Zambrano, Jose Marti, Jose Enrique Rodo, Alfonso Reyes, Victoria Ocampo, Gabriela Mistral, Jorge Luis Borges, and Octavio Paz. Close reading and appreciation of essays will be the focus of discussion, presentations, and short interpretive papers. Taught in English. Open to first-year students only. Also offered as SPAN 152. Course not offered 2004-2005. Instructor(s): *Kauffman*

FSEM 160 JEFFERSON & THE REPUBLIC (3)**Jefferson and the Origins of the Republic**

Examination of the most talented of the U.S. Founding Fathers and how he helped define the country's revolutionary ideals, diplomacy, and politics, as well as its public lands, domestic architecture, religion, practice of slavery, and education. Includes readings, discussions, and essays. Also offered as HIST 160. Limited enrollment. Course not offered 2004-2005.

FSEM 161 THE USES OF THE PAST (3)**The Uses of the Past**

Seminar analyzes how selected historical events are interpreted at different times and contexts. Sources include history books, novels, movies, court cases and political debates. Specific events studied will vary according to student interest from ancient times to the present. Also offered as HIST 161. Limited enrollment. Course not offered 2004-2005. Instructor(s): *Quillen*

FSEM 168 THE WORLD OF ARABIAN NIGHTS (3)**The World of the Arabian Nights**

Seminar on the social and cultural world of the stories of the 1001 nights. Readings and discussions reveal how they became famous in Europe and a source for western images of the Islamic World. Source materials range from translations and similar stories from different traditions to modern movies and TV shows. Also offered as HIST 168 and MDST 168. Limited enrollment Instructor(s): *Sanders*

FSEM 176 TERROR & AFRICAN AMERICAN HIST (3)**Rope and Faggot—Terror and African American History**

From the Murder of James Byrd. From the early 1880's to 1978, lynch mobs murdered nearly 5,000 African-Americans. Terror and black responses to it have shaped nearly every aspect of African American history. Seminar examines black society, politics, gender, and culture in the 20th century America against the backdrop of racial violence. Also offered as HIST 176. Limited enrollment.

GERM (GERMAN)**School of Humanities/Center for Study of Languages****GERM 101 BEGINNING GERMAN I (5)****Beginning German I**

The first in a series of courses, the principal objective of which is to engage students in purposeful communicative tasks designed to develop proficiency and literacy in the languages and cultures of Germany, Austria and Switzerland. Section 4 is an intensive course (3 weeks) that runs from late July to mid-August. For course details, see The German Language Gateway@Rice <http://lang.rice.edu/German> Enrollment limited to 20. Prerequisite(s): No prior knowledge of German. Instructor(s): *Staff*

GERM 102 BEGINNING GERMAN II (5)**Beginning German II**

The second in a series of courses, the principal objective of which is to engage students in purposeful communicative tasks designed to develop proficiency and literacy in the languages and cultures of Germany, Austria and Switzerland. For course details, see The German Language Gateway@Rice <http://lang.rice.edu/German> Enrollment limited to 20. Prerequisite(s): GERM 101, placement test, or permission of the instructor. Instructor(s): *Staff*

GERM 121 FROM KAFKA TO THE HOLOCAUST (3)**From Kafka to the Holocaust: Discourse In Alienation**

The beginnings of modernity have to be seen in the context of the sociopolitical and intellectual upheavals at the end of the 19th century. Whereas extreme reactionism eventually led to fascism, progressive literature advocated artistic experimentation as manifested in a discourse of alienation (expressionism, dada, Kafka). Holocaust literature reflects the ultimate clash between progressiveness and reactionism. The primary readings will be from Wedekind, Trakl, Kaiser, Kafka, Hesse, Remarque, Brecht, Celan, Werfel. Taught in English. Enrollment limited to 15. Also offered as FSEM 121. Course not offered 2004-2005. Instructor(s): *Weissenberger*

GERM 122 HIST THROUGH GERM CINEM (FSEM) (3)**History Through German Cinema (Freshman Seminar)**

The course presents an overview of German history via contemporary German feature films from World War I, through the Weimar and Nazi periods, the postwar years as a Divided Germany into East and West and finally a look at the new generation in Post-unification Germany. Taught in English. All films are subtitled in English. Enrollment limited to 15. Also offered as FSEM 122. Course offered Fall 2004 Instructor(s): *Eifler*

(F) = Fall; (S) = Spring

GERM 123 THROUGH TIME AND SPACE (FSEM) (3)**Through Time and Space: European Travel Stories**

A travel story stands at the beginning of European Literature: Homer's *Odyssey*. Since ancient times, literary travel accounts of all sorts, to all destinations, by all means and undertaken with a wide range of different purposes have kept Europeans on the move. First attracted by the exotic and the unknown in the far distance, the interest moved ever closer to the self, and the exploration of the human mind became the most exotic and intriguing journey. Readings include Homer, Swift, Voltaire, Goethe, Heine, Twain, and Verne. Taught in English. Also offered as FSEM 123. Enrollment limited to 15. Course not offered 2004-2005. Instructor: *Steiner*

GERM 124 LAW, MORALITY, & SOCIETY (FSEM) (3)**Law, Morality, and Society**

A historical introduction to central themes of legal and political thought in the Western tradition from Immanuel Kant to John Rawls, this freshmen seminar provides an overview of trends and controversies in modern political thought and society. Topics discussed include "civil rights," "morality," "liberalism," "natural law," "political theology," and "freedom." Enrollment limited to 15. Also offered as FSEM 124. Course not offered 2004-2005. Instructor(s): *Emden*

GERM 125 BTW RESISTANCE & COLLABORATION (3)**Between Resistance and Collaboration: Individuals Responding to National Socialism**

Focus on individuals' behavior in Nazi Germany/Austria. Issues of ideology and ethics as Germans and Austrians faced them between 1933-1945. Reflection on values such as courage, civil disobedience, and human rights in today's global society. Taught in English. Also offered as FSEM 125. Course offered Spring 2005. Instructor(s): *Kecht*

GERM 126 LEGEND OF KING ARTHUR (FSEM) (3)**The Legend of King Arthur In the Middle Ages (Freshman Seminar)**

In the 1100s people began writing down stories of Arthur, Guinevere, Merlin, and the Knights of the round table using sophisticated techniques of literary composition. Today, these stories count among the great writings of Europe. This course examines the spectrum of medieval stories and histories of Arthur that arose in England, France, and Germany from the beginning to the age of printing, plus some recent revivals. Also offered as FSEM 126 and MDST 126. Course offered Fall 2004. Instructor(s): *Westphal*

GERM 128 THE CULTURE OF WAR (3)**The Culture of War (Freshman Seminar)**

Focusing on the experience and representation of war in German and European literature, theory, and visual arts. Covers the period from 17th-20th century. Special emphasis on the First World War. Not for the faint-hearted, topics include: destruction, ruins, refugees, massacres, terrorism, victims, spaces of battle, the logic of war. Taught in English. Enrollment limited to 15. Also offered as FSEM 128. Instructor(s): *Emden*

GERM 129 LITERARY LOVE AFFAIRS (FSEM) (3)**Literary Love Affairs, Love and Passion In European Literature (Freshman Seminar)**

According to the German philosopher Hegel, love-stories are usually about a young man who seeks the ideal girl, finally gets her, and becomes as good a Philistine as others. The course invites students to examine this philosophical wisdom by reading select stories and theoretical texts about love and passion by European authors from the time of Shakespeare to the present. Enrollment limited to 15. Also offered as FSEM 129. Course offered Spring 2005. Instructor(s): *Steiner*

GERM 201 INTERMEDIATE GERMAN I (4)**Intermediate German I**

The third in a series of courses, the principal objective of which is to engage students in purposeful communicative tasks designed to develop proficiency and literacy in the languages and cultures of Germany, Austria and Switzerland. For course details, see The German Language Gateway@Rice <http://lang.rice.edu/German> Enrollment limited to 20. Prerequisite(s): GERM 102, placement test, or permission of the instructor. Instructor(s): *Staff*

GERM 202 INTERMEDIATE GERMAN II (4)**Intermediate German II**

The fourth in a series of courses, the principal objective of which is to engage students in purposeful communicative tasks designed to develop proficiency and literacy in the languages and cultures of Germany, Austria and Switzerland. For course details, see The German Language Gateway@Rice <http://lang.rice.edu/German> Enrollment limited to 20. Prerequisite(s): GERM 201, placement test, or permission of instructor. Instructor(s): *Staff*

GERM 214 LANG OF SCI & TECH IN GERMANY (4)**Language of Science and Technology In Germany**

Three-week intensive course taught in May in Munich, Germany. Open to students interested in German language and culture used in a technological setting. Proficiency based instruction. Requires separate registration with the Office of International programs. See <http://lang.rice.edu/German/>. Enrollment limited to 20. Prerequisite(s): GERM 201 or placement test, permission of instructor required. Instructor(s): *Staff*

(#) = credit hours per semester

GERM 301 ADVANCED GERMAN I (3)**Advanced German I**

The fifth in a series of courses, the principal objective of which is to engage students in purposeful communicative tasks designed to develop proficiency and literacy in the languages and cultures of Germany, Austria and Switzerland. For course details see The German Language Gateway@Rice <http://lang.rice.edu/German> Enrollment limited to 20. Prerequisite(s): GERM 202, placement test, or permission of instructor. Instructor(s): *Staff*

GERM 302 ADVANCED GERMAN II (3)**Advanced German II**

The sixth in a series of courses, the principal objective of which is to engage students in purposeful communicative tasks designed to develop proficiency and literacy in the languages and cultures of Germany, Austria and Switzerland. For course details, see The German Language Gateway@Rice (<http://lang.rice.edu/German>) Enrollment limited to 20. Prerequisite(s): GERM 301 placement test, or permission of the instructor. Instructor(s): *Staff*

GERM 303 COMPOSITION AND CONVERSATION I (3)**Composition and Conversation I: Language and Style In Cultural Texts**

Discussion and composition based on a variety of reading materials (videos, German newspapers, websites, literary texts) and interactional contexts (e.g. partner works, reports, interviews, dialogues). Focus on cultural awareness and topics relating to contemporary German literature, culture, and politics, then and now. Special emphasis on developing writing skills and oral fluency. Taught in German. Prerequisite(s): GERM 202 or equivalent and permission of instructor. Course offered Fall 2004. Instructor(s): *Kecht*

GERM 304 COMPOSITION & CONVERSATION II (3)**Composition and Conversation II: Language and Style In Cultural Texts**

This course will work with cultural texts, on-line information and film materials in order to prepare for a deeper understanding of German literary and intellectual sources. We will assess language and styles of literary genres (prose, lyric, drama), nonfictional writings and philosophical materials. Student performance is aimed to move from paraphrasing summary to analytic commentary in oral presentation and written expression. Taught in German. Course offered Spring 2005. Instructor(s): *Eifler*

GERM 321 EUROPEAN WM FILMMAKERS (MGC) (3)**European Women Filmmakers (Mapping German Culture)**

Filmmaking has celebrated its first hundred years. Women's contributions were significant and deserve to widen the film canon for all filmgoers. The course will concentrate on films by European women directors, taking into account aesthetic particularities, gender commitment, and post- feminist attempts. Importance will also be given to the contexts and conditions of women's film production. All films are subtitled in English. Taught in English with possible FLAC section. Also offered as WGST 358, HUMA 321, HART 385. Course offered Fall 2004. Instructor(s): *Eifler*

GERM 322 MARX, FREUD, EINSTEIN (MGC) (3)**Marx, Freud, Einstein: Forebears of Modernity (Mapping German Culture)**

Like no others, these three thinkers of the 19th and 20th centuries have influenced the intellectual, historical, social, and cultural development not only of Germany, but of the entire world. The course examines the works of these authors in the context of their own time as well as their continued importance in the present. Works by Brecht, Christa Wolf, Schnitzler, Kafka will also be considered. Taught in English with possible FLAC section. Course not offered 2004-2005. Instructor(s): *Weissenberger*

GERM 324 BERLIN (MGC) (3)**Berlin: Residence, Metropolis, Capital (Mapping German Culture)**

The course offers an introduction to German history, politics, and culture as mirrored in the history of the old and new German capital. Berlin has always been a city of contradictions: from imperial glamour to proletarian slums, from the Roaring Twenties to Hitler's seizure of power. Emerging from the ruins of WWII Berlin became both the capital of Socialism and the display window of the Free World after the fall of the wall. Berlin is still looking for its role in the center of a reshaped Europe. Readings and discussions encompass fine arts and literature from the 18th century to the present, including film. Taught in English with possible FLAC section. Also offered as HUMA 324. Course offered Fall 2004. Instructor(s): *Steiner*

GERM 325 GERM NBEL PRIZE LAURETES (MGC) (3)**German Nobel Prize Laureates (Mapping German Culture)**

The course will introduce the biography of Alfred Nobel and the reasons for establishing his famous Nobel Prize in his will of 1895. Most famous among German recipients were Thoman Mann (1929), Hermann Hesse (1946), Heinrich Böll (1972), and Günter Grass (1999). Their novel work will be analyzed as an artistic reflection of their socio-critical thoughts on the history of Germany. Taught in English with a possible FLAC section. Also offered as HUMA 325. Course not offered 2004-2005. Instructor(s): *Eifler*

(F) = Fall; (S) = Spring

GERM 326 GERM FARY TLE: OLD & NEW (MGC) (3)**The German Fairy Tale: Old and New (Mapping German Culture)**

Discussion of several prototypes from the fairy-tale collection of the Brothers Grimm and the subsequent development of the "literary" fairy tale from Goethe and the Romantics to the 20th century. Taught in English with a possible FLAC section in German. Also offered as HUMA 372. Course not offered 2004-2005. Instructor(s): *Weissenberger*

GERM 327 WOMEN & NAT'L SOCIALISM (MGC) (3)**Women and National Socialism (Mapping German Culture)**

Introduction to the Nazi idea of "womanhood" and the actual roles women played during National Socialism. Female perpetrators, Mitlaufer, multiplicity of victims and to resistance fighters. Taught in English. For students of German (at the minimal proficiency level intermediate-mid), and additional German reading/discussion hour for credit can be arranged. Also offered as HUMA 327, WGST 317. Course offered Spring 2005. Instructor(s): *Kecht*

GERM 328 GERM ADAPTNS: TEXT- FILM (MGC) (3)**German Adaptations: Text to Film (Mapping German Culture)**

Prominent novels of the 20th century will be studied for their possibilities or impossibilities of rendition from print medium to cinematic medium. From the myriad of adaptations we will concentrate on Thomas Mann: *Tod in Venedig*; Franz Kafka: *Das Schloss*; Klaus Mann: *Mephisto*; Günter Grass: *Die Blechtrommel*; H. Boll: *Katharina Blum*; Jurek Becker: *Jacob der Lügner*. All films are subtitled in English. Course taught in English with a possible FLAC section. Also offered as HUMA 328. Course offered Spring 2005. Instructor(s): *Eifler*

GERM 329 LIT OF HOLOCAUST & EXILE (MGC) (3)**Literature of the Holocaust and Exile (Mapping German Culture)**

Most of the authors from Germany and Austria, who were persecuted and fled into exile, used literature to search for meaning in life that apparently had been stripped of all meaning. Among these authors are the most distinguished writers of the time, i.e., Th. and H. Mann, Brecht, Benjamin, Werfel, Döblin, J. Roth, S. Zweig, N. Sachs, Celan, Auslander. Taught in English with a possible FLAC section. Also offered as HUMA 329. Enrollment limited to 20. Course not offered 2004-2005. Instructor(s): *Weissenberger*

GERM 330 CRTSHIP, LOVE & MARRIAGE (MGC) (3)**Courtship, Love, and Marriage in the Age of Civalry (Mapping German Culture)**

The literature of the High Middle Ages is the first since antiquity to probe the hazards and potentials of romance between men and women, as well as single-sex friendship and love. This course will show how the literary ideal of love emerged in a society that was torn apart by war and rivalry. The poems and stories we will read belong to the treasures of medieval literature from the German lands. Taught in English with a possible FLAC section. Also taught as WGST 330, HUMA 330, MDST 335. Course offered Spring 2005. Instructor(s): *Westphal*

GERM 331 SOCIETY AND CRISIS (MGC) (3)**Society and Crisis: Political Culture In the Weimar Republic (Mapping German Culture)**

Born in political and social crisis, the Weimar Republic exemplifies the possibilities and limits of modern democracy. This seminar focuses on original documents of political thought, literature, the visual arts, society, and law to explore the political culture of Germany's first, ill-fated democracy. Enrollment limited to 15. Taught in English with possible FLAC section. Also offered as HIST 431 Course offered Fall 2004. Instructor(s): *Emden, Caldwell*

GERM 332 TOPICS IN MOD GERM HIST (MGC) (3)**Topics In Modern German History (Mapping German Culture)**

Seminar on selected topics in the history of modern Germany. Taught in English with possible FLAC section. Also offered as HIST 459. Enrollment limited to 15. Course not offered 2004-2005. Instructor(s): *Caldwell*

GERM 333 NIETZSCHE'S ANTHROPOLOGY (MGC) (3)**Nietzsche's Anthropology: Language, History, and the Body (Mapping German Culture)**

Situates Nietzsche's thought on language, history, and the body within its historical context, and examines the validity of his arguments in a world increasingly challenged by scientific knowledge. Focuses on Nietzsche's views on truth, genealogy, nihilism, morality, and science, which continue to be relevant for current debates within the humanities. Taught in English with a possible FLAC section. Also offered as PHIL 390. Course offered Spring 2005. Instructor(s): *Crowell, Emden*

GERM 340 WALTER BENJAMIN (MGC) (3)**Walter Benjamin: Aesthetics, History and Politics (Mapping German Culture)**

Benjamin has been celebrated as a revolutionary Marxist, a theologian of Jewish Messianism, and as an essayist and literary critic. The course offers an introduction to his writings by way situating them in the historical background of the Weimar Republic and the crises of European society on the eve of WWII. Taught in English with a possible FLAC section. Also offered as HUMA 340. Course not offered 2004-2005. Instructor(s): *Steiner*

GERM 344 GERMAN HISTORY, 1648-1890 (3)**German History, 1648-1890 (Mapping German Culture)**

Survey of "Germanies" from the rise of absolutist state following the Thirty Years' War to the unification of Germany in 1871. Includes the development of the bureaucratic and military institutions of the modern state, changing conceptions of state and society, and the major social and economic changes of the period. Also offered as HIST 354. Course not offered 2004-2005. Instructor(s): *Caldwell*

GERM 345 GERMAN HISTORY, 1890-1945 (3)**From Democracy to Dictatorship: German History, 1890-1945 (Mapping German Culture)**

From 1890-1945, Germans experienced dramatic changes in their political environment. This lecture class will examine these changes, taking into account not only political history, but also attempts to come to terms with the challenges posed by organized capitalism, the rise and fall of socialism, the development of an interventionist state, cultural critique, the Nazi social revolution, and the Holocaust. Also offered as HIST 355. Course not offered 2004-2005. Instructor(s): *Caldwell*

GERM 351 GERMAN AUSTRIAN/STATE (3)**Intellectuals, Artists, and the German/Austrian State**

Focus on the multiple relationships 20th century artists/intellectuals have displayed towards the German/Austrian state in which they have lived and worked. Do artists/intellectuals carry public responsibility? Are artists/intellectuals supposed to act as a "public conscience"? Is art always political? Taught in German. Prerequisite(s): Intermediate-high proficiency (speaking and writing); successful completion of GERM 303 (or equivalent). Course offered Fall 2004. Instructor(s): *Kecht*

GERM 352 GERMAN PLAY PRODUCTION (3)**German Play Production**

This course will allow students a) to apply their German in preparation for a public play production; b) to become familiar with the genre of drama, learn more about a particular play and its author, its literary and socio-historical context; c) assume responsibility for various aspects of a stage production; and d) demonstrate their performing abilities and their understanding of the chosen German play on stage. Choice of a modern playwright from any of the German-speaking countries to be determined. All readings, assignments, and discussions in German. Prerequisite(s): A minimum proficiency of intermediate-mid in speaking and writing; satisfactory completion of GERM 202 or equivalent; or permission of instructor. Instructor(s): *Kecht*

GERM 401 IND WRK GERM LITERATURE (3)**Independent Work In German Literature**

Qualified students work on projects of their choice under the supervision of individual instructors with approval of the undergraduate advisor. Course may be repeated for credit. Course offered Fall 2004. Instructor(s): *Staff*

GERM 402 IND WRK GERM LITERATURE (3)**Independent Work In German Literature**

Qualified students work on projects of their choice under the supervision of individual instructors with approval of the undergraduate advisor. Course may be repeated for credit. Course offered Spring 2005. Instructor(s): *Staff*

GERM 403 HONOR THESIS (3)**Honor Thesis**

Independent research projects by outstanding German majors leading to a substantial honors essay, undertaken in close cooperation with a departmental faculty member. Course offered Fall 2004. Instructor(s): *Staff*

GERM 404 HONOR THESIS (3)**Honor Thesis**

Independent research projects by outstanding German majors leading to a substantial honors essay, undertaken in close cooperation with a departmental faculty member. Course offered Spring 2005. Instructor(s): *Staff*

GERM 411 ENLIGHTENMENT TO ROMANTICISM (3)**Enlightenment to Romanticism (1700-1850)**

An introduction to the major social, political and cultural developments in the period between 1700-1850, which contributed to the emergence of modern German cultural identity within the European context. Covers wide range of theoretical and literary works by Kant, Lessing, Schiller, Goethe, Eichendorff, Hoffmann, Heine, and others. Taught in German. Course offered Fall 2004. Instructor(s): *Emden*

GERM 412 GERMAN REALISM TO MODERNISM (3)**German Realism to Modernism (1850-Present)**

German history and culture during the late 19th and the 20th century have been rather turbulent: From Wilhelminian empire to Weimar democracy to Hitler fascism to socialist division to German reunification to entry into the European Union. All these political changes will be commented on by cultural reflections in textual and filmic forms. Literary texts will include Stifter, Fontane, Mann, Kafka, Böll, Grass, Wolf and Maron. Taught in German. Course offered Spring 2005. Instructor(s): *Eifler*

(F) = Fall; (S) = Spring

GERM 425 VIENNA AND ITS PEOPLE (3)**Vienna and Its People (Special Topics Seminar)**

In this course we will look at the people of Vienna from the turn of the century to the present. Our readings, film viewings and discussions will introduce us to the Viennese as people of all classes and ethnic and national groups. Taught in German. Prerequisite(s): intermediate high proficiency (speaking and writing); successful completion of German 303 (or equivalent). Course not offered 2004-2005. Instructor(s): *Kecht*

GREE (GREEK)**School of Humanities/Classical Studies****GREE 101 INTRO ANCIENT GREEK I (3)****Introduction to Ancient Greek I**

Introduction to ancient Greek, with emphasis on acquisition of reading skills. Course offered Fall 2004. Instructor(s): *Mackie*

GREE 102 ELEMENTARY GREEK II (3)**Elementary Greek II**

Continuation of GREE 101. Enrollment limited to 25. Course offered Spring 2005. Instructor(s): *Mackie*

GREE 201 INTERMEDIATE GREEK I: PROSE (3)**Intermediate Greek I: Prose**

Review of forms and syntax. Course offered Fall 2004. Instructor(s): *McGill*

GREE 202 INTERMEDIATE GREEK II: POETRY (3)**Intermediate Greek II: Poetry**

Readings from Homer or Attic tragedy. Course offered Spring 2005. Instructor(s): *Yunis*

GREE 301 ADVANCED GREEK (3)**Advanced Greek**

Further reading of ancient Greek texts with emphasis on the linguistic development of ancient Greek. Course not offered 2004-2005. Instructor(s): *Staff*

GREE 491 DIRECTED READING (3)**Directed Reading**

Independent work for qualified juniors and seniors in genres or authors not presented in other courses. Course offered Fall 2004. Instructor(s): *McGill*

GREE 492 DIRECTED READING (3)**Directed Reading**

Independent work for qualified juniors and seniors in genres or authors not presented in other courses. Course offered Spring 2005. Instructor(s): *Yunis*

HART (HISTORY OF ART)**School of Humanities/Art History****HART 101 INTRO TO HIST OF WESTERN ART I (3)****Introduction to the History of Western Art I: Prehistoric to Gothic**

A survey of painting, sculpture, and architecture from the Paleolithic period through the 15th century. Also offered as MDST 111. Instructor(s): *Neagley*

HART 102 INTRO HIST OF WESTERN ART II (3)**Introduction to the History of Western Art II: Renaissance to Present**

A survey of painting, sculpture, and architecture from the Renaissance through the 20th century.

HART 103 INTRO TO THE HIST OF ASIAN ART (3)**Introduction to the History of Asian Art**

Survey of Asian art from the Neolithic period to the present. Instructor(s): *Nakatani*

HART 104 CASE STU IN ANCNT & MED ARCH (3)**Case Studies In Ancient and Medieval Architecture**

This course offers an introduction to the history of Western art and architecture through weekly case studies of some of the most important public and private buildings in antiquity and the Middle Ages: from the Parthenon to a Roman house, Carnavan Castle to Chartres Cathedral. Topics explored throughout the course include the construction of imperial authority, ritual and the formation of space, and the relationship between structure and design. This course is offered in alternate years with HART 101. Also offered as MDST 104.

(#) = credit hours per semester

HART 105 KEY MONUMENTS & ARTISTS (3)**Key Monuments and Artists of the West Mvmt**

An in-depth look at important moments in the history of European and American art, from the Renaissance to the 20th century. Rather than being a comprehensive survey, the course will focus on a limited number of works by leading artists in the fields of painting, sculpture, and architecture.

HART 170 THE ARTS OF CHINA (3)**The Arts of China**

Introduction of the history of the visual arts of China from the Bronze Age to the present. We will pay special attention the artworks' physical and social contexts (e.g. tomb, temple, court, literati's garden and studio, city, nation-state). Topics include: funerary art and the imagination of the afterlife, art and imperial cosmology, rise of literati aesthetic, relationship between landscape painting and calligraphy, and the emergence of propaganda avant-garde art in Modern China. Also offered as ASIA 170. Instructor(s): *Nakatani*

HART 204 ART AS CIVILIZATION (3)**Art As Civilization**

This seminar will examine the formative role that definitions of civilization have played in shaping the West in the modern period, and it will pay particular attention to the role that art has been assigned as one of civilization's attributes and agents. Topics will include: the museum, the discipline of art history, war spoils, and iconoclasm. Enrollment limited to 15.

HART 207 FOURTEEN ARTWORKS AT THE MFAH (3)**Fourteen Artworks At the MFAH**

This course is designed to provide students with no previous background in art history with an introduction to the discipline through the "in situ" study of 14 works from the permanent collection of The Museum of Fine Arts, Houston. Some of the topics to be addressed include British aristocratic portraiture, French Impressionist painting, the aesthetic dialogues of Matisse and Picasso, the abstracted sculptures of Brancusi and Calder, and the site-specific installation of Turrell's light tunnel. Enrollment limited to 15. Instructor(s): *Brennan*

HART 208 SPECIAL TOPICS (HOURS VARIABLE)**Special Topics In Museum Studies**

Special topics and new courses, not necessarily to be repeated. May be used in awarding transfer credit. Prerequisite(s): Permission of the instructor.

HART 209 INDEPENDENT STUDY (HOURS VARIABLE)**Independent Study In Museum Studies**

Independent study, reading, or special research in art history at the introductory level. Prerequisite(s): Permission of the instructor.

HART 218 SPEC TOP: ANCIENT GREEK SITES (3)**Special Topics: Ancient Greek Sites**

Special topics, independent study, and new courses in ancient art, not necessarily repeated. May be used in awarding transfer credit. Prerequisite(s): Permission of the instructor.

HART 219 INDEPENDENT STUDY (HOURS VARIABLE)**Independent Study: Ancient Art**

Special topics, independent study, and new courses in ancient art, not necessarily repeated. May be used in awarding transfer credit. Prerequisite(s): Permission of the instructor.

HART 228 SPECIAL TOPICS (HOURS VARIABLE)**Special Topics In Christian, Byzantine and Islamic Art**

Special topics, independent study, and new courses in early Christian, Byzantine, and Islamic art, not necessarily repeated. May be used in awarding transfer credit. Prerequisite(s): Permission of the instructor.

HART 229 INDEPENDENT STUDY (HOURS VARIABLE)**Independent Study In Christian, Byzantine, and Islamic Art**

Special topics, independent study, and new courses in early Christian, Byzantine, and Islamic art, not necessarily repeated. May be used in awarding transfer credit. Prerequisite(s): Permission of the instructor. Instructor(s): *Hamadeh*

HART 238 SPECIAL TOPICS (HOURS VARIABLE)**Special Topics In Medieval Art**

Special topics, independent study, and new courses in Medieval art, not necessarily repeated. May be used in awarding transfer credit. Prerequisite(s): Permission of the instructor.

HART 239 INDEPENDENT STUDY (HOURS VARIABLE)**Independent Study In Medieval Art**

Independent study, reading, or special research in art history. Prerequisite(s): Permission of the instructor.

(F) = Fall; (S) = Spring

HART 240 MEDIEVAL AND RENAISSANCE (3)**Art In Context: Late Medieval and Renaissance Culture**

This course will be concerned with the art, architecture, and history of the late Middle Ages and Renaissance. We will employ historical texts, literature, and illustrations of works of art, showing how historical documents and sources can illuminate the cultural context of art and architecture. Also offered as HUMA 108 and MDST 108.

Instructor(s): *Neagley; Manca*

HART 248 SPECIAL TOPICS (HOURS VARIABLE)**Special Topics In Renaissance and Baroque Art**

Independent study, reading, or special research in art history. Prerequisite(s): Permission of the instructor.

HART 249 INDEPENDENT STUDY (HOURS VARIABLE)**Independent Study In Renaissance and Baroque Art**

Independent study, reading, or special research in art history. Prerequisite(s): Permission of the instructor.

HART 258 SPECIAL TOPICS (HOURS VARIABLE)**Special Topics In 19th and 20th Century Art**

Independent study, reading, or special research in art history. Prerequisite(s): Permission of the instructor.

Instructor(s): *Di Palma*

HART 259 INDEPENDENT STUDY (HOURS VARIABLE)**Independent Study In 19th and 20th Century Art**

Independent study, reading, or special research in art history. Prerequisite(s): Permission of the instructor.

Instructor(s): *Di Palma*

HART 268 SPECIAL TOPICS (HOURS VARIABLE)**Special Topics In American Art**

Independent study, reading, or special research in art history. Prerequisite(s): Permission of the instructor.

Instructor(s): *Brennan*

HART 269 INDEPENDENT STUDY (HOURS VARIABLE)**Independent Study In American Art**

Independent study, reading, or special research in art history. Prerequisite(s): Permission of the instructor.

Instructor(s): *Brennan*

HART 278 SPECIAL TOPICS (HOURS VARIABLE)**Special Topics In Non-Western Art**

Special topics and new courses in non-Western art, not necessarily repeated. May be used in awarding transfer credit. Prerequisite(s): Permission of the instructor.

HART 279 INDEPENDENT STUDY (HOURS VARIABLE)**Independent Study In Non-Western Art**

Independent study, reading, or special research in non-Western art. Prerequisite(s): Permission of the instructor.

HART 280 HISTORY AND AESTHETICS OF FILM (4)**History and Aesthetics of Film**

Introduction to the art and aesthetics of film as an artifact produced within certain social contexts. Includes style, narration, mise-en-scene, editing, sound, and ideology in classical Hollywood cinema, as well as in independent, alternative, nonfiction, and Third World cinemas. Enrollment limited to 30. Instructor (s): *Dove*

HART 281 HISTORY & AESTHETICS OF VIDEO (4)**History and Aesthetics of Video**

Overview of the history of American television and video, with emphasis on milestone genre, programs, and videos in the context of socioeconomic and political events and contemporary discourse. Includes mainstream TV and newer forms such as cable TV, video art, and ethnic TV. Instructor(s): *Naficy*

HART 285 INTRO TO FILM: FILM CRITICISM (3)**Introduction to Film: Film Criticism**

This writing-intensive course will teach students to view films analytically and write film criticism. Each week, students will view a film, read some criticism of that film, and write their own view of the film. Screenings will be taken from important movements in world cinema history. Special emphasis on influential relationships between criticism and film styles. Also offered as ENGL 275. Enrollment limited to 15. Instructor(s): *Osther*

HART 286 CLASS & CONTEMP FILM THEORY (3)**Classical and Contemporary Film Theory**

This course introduces the student to approaches to understanding and interpreting film as film. It traces the attempts to grasp the new medium in theoretical terms from its origins to the present day. Topics include: montage, mis-en-scene, the gaze, history, psychoanalysis, and feminism. Also offered as ENGL 286. Enrollment limited to 20. Instructor(s): *Dove*

(*) = credit hours per semester

HART 288 SPECIAL TOPICS (HOURS VARIABLE)**Special Topics in Film and Media Studies**

Special topics and new course in film and media studies, not necessarily repeated. May be used in awarding transfer credit. Prerequisite(s): Permission of instructor. Instructor(s): *Staff*

HART 289 INDEPENDENT STUDY (HOURS VARIABLE)**Independent Study in Film and Media Studies**

Independent study, reading, or special research in film and media studies. Prerequisite(s): Permission of the instructor. Instructors(s): *Staff*

HART 298 SPECIAL TOPICS (HOURS VARIABLE)**Special Topics in Art Theory and Criticism**

Independent study, reading, or special research in art history. Prerequisite(s): Permission of the instructor. Instructor(s): *Staff*

HART 299 INDEPENDENT STUDY (HOURS VARIABLE)**Independent Study in Art Theory and Criticism**

Independent study, reading, or special research in art history. Prerequisite(s): Permission of instructor. Instructor(s): *Staff*

HART 300 MUSEUM INTERN PROGRAM I (HOURS VARIABLE)**Museum Intern Program I**

The aim of this course is to provide select students a practicum in museum work accompanied by an introduction to a history of museums, including the varieties of museums, their role in society and significant issues in museums today. Prerequisite(s): Permission of instructor. Instructor(s): *Canfield*

HART 301 MUSEUM INTERN PROGRAM II (HOURS VARIABLE)**Museum Intern Program II**

The aim of this course is to provide select students a practicum in museum work accompanied by an introduction to a history of museums, including the varieties of museums, their role in society and significant issues in museums today. Prerequisite(s): Permission of the instructor. Instructor(s): *Canfield*

HART 310 THE FIRST CIVILIZATIONS (3)**The First Civilizations**

The early development of civilizations from the Paleolithic age to the first Bronze Age urbanizations in Mesopotamia, Egypt, Indus Valley, and China. Slide illustrated lectures will focus on archaeology, history of religion, and history of art. Attention to contemporary cultural politics. Instructor(s): *McEvilley*

HART 311 THE THEME OF FERTILITY (3)**The Theme of Fertility**

Ancient fertility, religions, and their disguised or censored modes of survival into the modern world, will be investigated through archaeology, mythology, literature, history of religions, and history of art. Paleolithic, Neolithic, Ancient Near East and Greece, India, China, and pre-Columbian New World - then a glance at Modernity. Lectures with thousands of slides. Get ready to learn a new language of images. Instructor(s): *McEvilley*

HART 312 GREEK ART AND ARCHITECTURE (3)**Greek Art and Architecture**

This course will present the art and architecture of Greece, Asia Minor, and Southern Italy (Magna Graecia) from the Bronze Age through the Hellenistic period (ca 2000-30 B.C.). It will consider development of the classical orders in architecture, innovations with painting and sculpture, and the cultural and political significance of art in ancient Greek society. Also offered as CLAS 312. Instructor(s): *Quenemoen*

HART 313 DISCOVERY OF THE MIND (3)**Discovery of the Mind**

The transition from the Bronze Age to the Iron Age. From myth to philosophy. First expressions of subjectivism and relativism. Primarily ancient near Eastern and Greek materials. Emphasis will be on art, philosophy, literature, and religion. Enrollment limited to 12. Instructor(s): *McEvilley*

HART 315 ROMAN ART & ARCHITECTURE (3)**Roman Art and Architecture**

A chronological survey of Roman sculpture, painting, and architecture from its Etruscan beginnings to the late Empire. Art and architecture of Rome and the provinces considered within their larger social, political, and urban contexts. Particular attention given to patronage, the relation between Roman and Greek art, and Rome's position as an artistic center. Also offered as AMC 315 and CLAS 315. Enrollment limited to 25. Instructor(s): *Quenemoen*

(F) = Fall; (S) = Spring

HART 320 THE AGE OF AUGUSTUS (3)**Age of Augustus**

This course will consider the period in Roman history between 31 BC and 14 AD, when the emperor Augustus restored stability to the Roman world, oversaw the expansion of the empire, and rebuilt Rome as a capital city. The Age of Augustus witnessed an unparalleled flowering in the literary arts and a revolution in art and architecture whose legacy persists to this day. We will examine in detail the political events and cultural life of this vital time, paying particular attention to the continuity between the late Republic and the Augustan period, Augustus' construction of his public identity, imperial and non-imperial patronage in poetry and the visual arts, and the role of literature, art, and architecture in the formation of Augustan ideology in Rome and in the provinces. The course offers a thorough picture of one of the most significant, yet in some ways most elusive, periods in antiquity. Also offered as CLAS 320. Instructor(s): *Quenemoen*

HART 321 VIS CULTURAL ISLAMIC WORLD I (3)**Visual Culture of the Islamic World I**

An introduction to the arts of architecture of the Islamic world from the rise of Islam to the Mongol invasions. Explores the development of a visual tradition through its continuities, regional variations, exchanges, and inter-textualities. Examines key religious and secular institutions and art forms through their aesthetic and historical contexts. Also offered as ARCH 331. Instructor(s): *Hamadeb*

HART 322 VIS CULTURAL ISLAMIC WORLD II (3)**Vis Culture of the Islamic World II**

An introduction to the architecture, ceramics, textiles, and arts of the book of the Islamic world, from Egypt to India and Central Asia, beginning in the wake of the Mongol conquests and ending with the demise of the Ottoman empire. Focusing on court patronage and production, the course examines key buildings and objects through their aesthetic, cultural, religious, and political contexts. Methodological concerns of the field are addressed through an exploration of such themes as iconoclasm, word and image, and cross-cultural influences. Enrollment limited to 20. Also offered as ARCH 332. Instructor(s): *Hamadeb*

HART 325 WHAT IS ISLAMIC ART? (3)**What Is Islamic Art?**

This seminar is a critical examination of key themes and issues in Islamic art. Based on readings that focus on specific examples of artistic and architectural production of major landmarks from the 7th to the 18th centuries our discussions will evolve around such questions as: What is Islamic about Islamic art? How and where did art, religion, and politics intersect? to what extent were art and architecture informed by religious principles, practices, and rituals? Can we speak of a distinctive visual language across the Muslim world? We will also experience the role of myth in the construction of cultural heritage, the development of writing into a major form of art called calligraphy, and questions of patronage and imperial ideology. We will revisit long-held assumptions about the nature of Islamic art as iconoclastic and aniconistic, and about the nature and aspect of artistic exchange between the Muslim world and the Latin Christian West, Byzantium, and China. Instructor(s): *Hamadeb*

HART 330 EARLY MEDIEVAL ART (3)**Early Medieval Art**

Early Medieval Art from the 5th Century to the Romanesque period. This course begins with a study of the art and architecture of the Ostrogoths, Visigoths, Lombards, Celts, Anglo-Saxons, Franks, and Merovingians, and the transformation of the Roman World through new Germanic, Barbarian, and Christian forces. The second part of the course considers the cultural Renaissance of the Carolingian and Ottonian Periods under rulers such as Charlemagne and Otto III. The last third of the course focuses on themes of pilgrimage, relics, crusades and the emergence of new monumental tradition in art and architecture during the Romanesque Period. Also offered as MDST 330.

HART 331 GOTH ART & ARCH EUROPE 1140-1300 (3)**Gothic Art and Architecture In Northern Europe, 1140-1300: The Age of Cathedrals**

Examination of the full array of sacred art and architecture produced in the early and high gothic periods in northern Europe. Includes cathedral architecture, sculpture, stained glass, manuscripts, and metalwork studies in relationship to the expansion of royal and Episcopal power. Also offered as MDST 331. Instructor(s): *Neagley*

HART 332 LATE GOTH ART&ARCH N.EUROPE (3)**Late Gothic Art and Architecture In Northern Europe, 1300-1500**

Examination of art and architecture produced in the late gothic period within three distinct settings--the court, the city, and the church. Includes private, public, and religious life as expressed in the objects, architecture, and decoration of the castle and palace, the house, the city hall and hospital, and the chapel and parish church. Also offered as MDST 332. Instructor(s): *Neagley*

HART 340 NORTHERN RENAISSANCE ART (3)**Northern Renaissance Art**

Study of art in northern Europe from Jan van Eyck to Peter Bruegel. Instructor(s): *Manca*

(#) = credit hours per semester

HART 341 EARLY RENAISSANCE ART IN ITALY (3)**Early Renaissance Art In Italy**

Study of Italian art and architecture from Giotto to Botticelli, with emphasis on painting and sculpture in the 15th century. Instructor(s): *Manca*

HART 342 HIGH RENAISSANCE & MANNERISM ITALY (3)**The High Renaissance and Mannerism In Italy**

Study of the High Renaissance, with emphasis on its leading masters (e.g., Leonardo, Raphael, Bramante, Michelangelo, and Titian). Includes a study of mannerism, the stylish art produced after the first quarter of the 16th century. Instructor(s): *Manca*

HART 343 MASTERS OF THE BAROQUE ERA (3)**Masters of the Baroque Era**

Study of the works of the greatest painters and sculptors in Europe during the Baroque period. Includes Rembrandt, Rubens, Caravaggio, Poussin Claude, and Velazquez. Instructor(s): *Manca*

HART 345 ARCHITECTURE & THE CITY I (3)**Architecture and The City I**

This course provides a chronological survey of European architecture, urbanism, and landscape design from the Renaissance to the nineteenth century. Through focused attention to selected buildings, plans, designs, and theories, the course considers key works and their relationships to differing aesthetic, cultural, and political contexts. Also offered as ARCH 345. Instructor(s): *Di Palma*

HART 350 VISUAL CULTURES OF ENLIGHTENMENT (3)**Visual Cultures of the Enlightenment**

This course explores the visual cultures of the European Enlightenment (1650-1800), focusing on developments in architecture, painting, prints, urbanism, and landscape design and their intellectual and historical contexts. Topics include: intimacy and self; prisons, hospitals, and academies; luxury and sensual pleasures; the Grand Tour and the search for origins; urban spectacles and the public sphere. Instructor(s): *Di Palma*

HART 351 NINETEENTH CENTURY ART (3)**Nineteenth Century Art In Europe**

Exploration of the major developments in painting and sculpture from late 18th century neoclassicism and romanticism through realism, impressionism, and post-impressionism. Include architecture, photography, and decorative arts. Instructor(s): *Di Palma*

HART 352 20TH CENTURY ART IN EUROPE (3)**Twentieth Century Art In Europe**

Exploration of major developments in painting and sculpture from the 1880s to the 1940s. Includes impressionism and post-impressionism, expressionism, cubism, abstraction Dada, and surrealism, with a brief consideration of architecture and photography. Instructor(s): *Staff*

HART 354 TRANSITION FROM MODERNISM (3)**The Transition from Modernism to Postmodernism**

A study of film as an integrated part of visual culture in general. In addition, this course will integrate the arts in general within a mat of cultural wholeness including history, philosophy, post-colonial studies. Marxism, and psycho-analytic theory, with less explicit attention to post-modern issues in literacy criticism. Instructor(s): *McEvilley*

HART 355 MOD-POSTMODERN ART CRITICISM (4)**Modern to Postmodern Art Criticism**

The study of the history, function, and philosophical foundations of modern and postmodern art criticism. The relationship of artists to critic, the place of the artist/critic, and the institutional role of critics will be examined. Enrollment limited to 12. Instructor(s): *Staff*

HART 360 AMER ARCH&DECOR ARTS 1900 (3)**American Architecture and Decorative Arts Before 1900**

Major topics will include the furniture styles of early America, the architecture of colonial cities, the life, thought, and architectural ideas of Thomas Jefferson, urban design and building projects in Washington, D.C., and other U.S. cities, and domestic life and interior design in 19th century America. Instructor(s): *Manca*

HART 361 AMER PAINT & SCULP BEFORE 1900 (3)**American Painting and Sculpture Before 1900**

The course will cover such topics as portraiture in colonial America, the neoclassical movements in American sculpture, the landscape painting of the Hudson River School, and the art of Winslow Homer and John Singer Sergeant. We will study the relationship between American philosophy (especially transcendentalism) and painting. Includes European and Latin American art as relevant. Instructor(s): *Manca*

(F) = Fall; (S) = Spring

HART 364 STU IN AMER ART: COL ERA-1920 (3)**Studies in American Art from the Colonial Era to 1920**

This course will examine a range of topics in U.S. art from the colonial era to circa 1920. Some themes to be addressed will include representations of landscape and their relation to American culture nationalism; social realism vs. modernist abstract images; and representations of general subjectivity in American visual culture. Enrollment limited to 20. Instructor(s): *Brennan*

HART 365 GENDR AND HIST OF PHOTOGRAPHY (3)**Gender, Subjectivity, and the History of Photography**

This course will examine a range of subjects within the history, theory, and criticism of photography, including the relationship between commodification, eroticism, and the objectification of the body; and the intersecting issues of mechanical reproduction, authorship, and authenticity in modern and postmodern discourses. Also offered as WGST 365. Enrollment limited to 15. Instructor(s): *Brennan*

HART 366 AMERICAN ART 1920-1960S (3)**Studies In American Art: from the 1920s to the 1960s**

This course will examine a range of topics in American and European art from the 1920s to the 1960s. Our subjects will include the machine aesthetic, cultural nationalism, social realist and regionalist practice, the New York School, and Pop art. Intense methodological reading will accompany visual analysis. Enrollment limited to 40. Instructor(s): *Brennan*

HART 367 STUDIES IN MODERN ART (3)**Studies in Modern Art from the 1960s to Present**

This course will examine a range of topics in American and European art from the 1960s to the present. Our subjects will include Pop art, Brutalism, deconstruction, postmodernism, minimalism, and art in the digital age. Enrollment limited to 40. Instructor(s): *Brennan*

HART 368 SUBJECTIVITY IN MOD/POST ART (3)**Subjectivity in Modern/Postmodern Art**

Subjects of Desire: Subjectivity in Modern and Postmodern Art and Thought. This course examines the intellectual history of subjectivity and its various representations in modernist and postmodernist aesthetics. In particular, we will consider the intersection of subjectivity and desire by examining the ongoing project of human self-creation through aesthetics, ornament, framing devices, technological apparatuses, and other supplementary objects of desire within traditional humanist discourses to recent "posthumanist" narratives. Instructor(s): *Brennan*

HART 369 SEM:BEAUTY & FRAG IN MOD ART (3)**Seminar on Beauty and Fragmentation In Modern Art**

This course will examine literal and symbolic representations of the body in modern American and European art. Topics addressed will include conceptions of beauty versus subjective fragmentation; the performance nature of social identity; and art history's longstanding preoccupation with the sensuous equivalency of flesh and paint. Also offered as WGST 369. Enrollment limited to 15. Instructor(s): *Brennan*

HART 371 TRADITIONAL CHINESE PAINTING (3)**The Brush and the Stroke In Traditional Chinese Painting**

Traditional Chinese painting was the art of the movements of the brush. This course examines the brushwork from several perspectives: as performance; as expression of the artist's moral character; and as a system of codes and gestures borrowed from the art of calligraphy. We consider how historically shifting understanding of the brushwork served to express diverse aesthetic, social, and cultural concerns: the cosmological and political significance of writing; the function of pictorial expression; the distinction between professional and literati painters; and the notion of the pictorial canon. Also offered as ASIA 371. Instructor(s): *Nakatani*

HART 373 METHODOLOGY SEMINAR (3)**Methodology Seminar: Word and Image**

Art history is the craft of putting images into words. This course explores the question of how words and images intersect in the visual arts. Readings of some key texts on the subject will be followed by a series of case studies concerning specific artistic genres and issues. Topics include: narrative in painting; the frame and the caption; character and face in portraiture; the word as image in calligraphy; and sound and image in film. Through its readings and cases, the course will provide students a focused introduction to art historical theories and methods. Instructor(s): *Nakatani*

HART 375 LATIN AMERICAN ART (3)**Latin American Art: Independence to the Present**

This course studies the work of leading visual artists working in Latin America during the 19th and 20th centuries. The range and diversity of Latin American art will be emphasized and work in a variety of media will be explored, including mural painting, easel painting, architecture, prints, sculpture, photography, film, installations, and conceptual art. The work will be discussed in terms of contextual historical, political, social, and cultural developments. Instructor(s): *Deffebach*

(#) = credit hours per semester

HART 376 MODERN MEXICAN ART (3)**Modern Mexican Art**

This course studies the art of Mexico from Independence (1821) to the present. Primary emphasis will be on twentieth-century art, especially on images created after the Mexican Revolution of 1910-20. A variety of media will be explored, including murals, easel painting, architecture, prints, photography, film, and conceptual art. We will examine the construction of national identity, the debate between national and international currents in art, and the role of public art. Enrollment limited to 20. Instructor(s): *Deffebach*

HART 380 SUR OF AMERICAN FILM&CULTURE (3)**Survey of American Film and Culture**

This course will cover the history of cinema in the U.S. from its origins to the present day. We will examine the development of narrative, the transition to synchronized sound, the classical Hollywood form and style (with detailed analysis of cinematography, editing, mise-en-scene, sound), the rise and fall of the Production Code, film genres and the star system, the emergence of television, the influence of postwar "art cinemas," the origins of the blockbuster, and the status of Hollywood as "global cinema." The relationship between film and culture will be explored through the economics of filmmaking, the role of regulatory institutions, and the controversies surrounding the notorious Birth of a Nation, McCarthyism and the Blacklist, and representations of sex and violence on film. Also offered as ENGL 373. Instructor(s): *Osther*

HART 381 GRAPHING, COUNTING, FILMING (3)**Graphing, Counting, Filming: Representation In Science and Anthropology**

Cinema originated in the inscription of physiology on film; this was quickly followed by biology and ethnology done by cinematography. This course examines the historical, critical and methodological relations between film as a medium or method of visual investigation and cinema as a site of cultural analysis. Also offered as ANTH 318. Instructor(s): *Landecker*

HART 382 MODALITIES OF CINEMA (3)**Modalities of Cinema**

In each class a lecture will introduce the day's film, the film will then be watched, followed by a discussion. Much of the material of film history will be presented, but in a deliberately jumbled way. Each film will be a major classic of a movement or genre, but they will be viewed out of historic order with the intention of highlighting certain themes and features. Enrollment limited to 30. Instructor(s): *McEvilly*

HART 383 GLOBAL CINEMA (4)**Global Cinema**

This course introduces students to cinema as a global enterprise. It explores the relationship between nations, identities, races, concepts, and genres. It inquires into the question of globalization as it relates to the motion picture audience, corporations, and the commerce of ideas. Instructor(s): *Dove*

HART 385 EUROPEAN WOMEN FILMMAKERS (3)**Mapping German Culture: European Women Filmmakers**

Filmmaking has celebrated its first hundred years. Women's contributions were significant and deserve to widen the film canon for all filmgoers. This course will concentrate on films by European women directors, taking into account historical pioneering, cultural identities, aesthetics particularities, gender commitment, subject orientations and post-feminist attempts. Importance will also be given to the contexts and conditions of women's film production. All films subtitled in English. Taught in English with possible FLAC section. Also offered as GERM 321, WGST 358, and HUMA 321. Instructor(s): *Eifler*

HART 387 CULTURAL STUDIES (4)**Global Media Studies**

Examines the relationship between globalization and mass-mediated images and sounds. Looks at global distribution of Hollywood entertainment from early twentieth century onward; reception of Hollywood cinema and television in different national contexts; production of alternative/oppositional film and television by indigenous populations. Case studies of Hollywood, Bollywood, and Hong Kong.

HART 390 THEORIES OF VISUAL ARTS (3)**Theoretical Perspectives on the Visual Arts**

Exploration of overlapping themes central in the history of art, using texts from Plato to post-modernism. Includes the use of biography, style, connoisseurship, quality, the social basis of art, theories of change in the arts, psychology, iconography, and the modernist canon and post-modern challenges to that canon, as well as race, gender, class, authorship, and audience. Instructor(s): *Staff*

HART 391 FEMINISTS VISUAL CULTURE (3)**Producing Feminist Knowledge: Methodology and Visual Culture**

In this course we will examine various methodologies used by feminist scholars in the Social Sciences and the Humanities. Particular attention will be devoted to the practical application of feminist methodologies in visual culture and the history of art, as well as to the interdisciplinary feminist inquiries in science, ethnography, and epistemology. Also offered as WGST 391. Enrollment limited to 10. Instructor(s): *Brennan, Shehabuddin*

(F) = Fall; (S) = Spring

HART 392 CONCEPTUAL ART & ARCHITECTURE (3)**Conceptual Art and Architecture**

The first part of the course will examine the conceptual art practices that began in the 1960s, including Bochner, Kosuth, art and language, LeWitt, Hacke, Kelly, and Smithson. The second part of the course will focus on the question of what constitutes a conceptual architecture by interrogating a series of potential practices including: Super Studio, Anchiram, Eisenman, Libesking, Shinohara, Hejduf, Tschumi, and others. Also offered as ARCH 384 Instructor(s): *Last*

HART 400 BAYOU BEND INTERNSHIP I (HOURS VARIABLE)**Bayou Bend Internship I**

Internship at Bayou Bend, the American Decorative Arts Center of the Museum of Fine Arts, Houston. Must be a Jameson Fellowship recipient to enroll. Instructor(s): *Manca*

HART 401 BAYOU BEND INTERNSHIP (HOURS VARIABLE)**Bayou Bend Internship II**

Internship at Bayou Bend and The American Decorative Arts Center of the Museum of Fine Arts, Houston. Must be a Jameson Fellowship recipient to enroll. Instructor(s): *Manca*

HART 408 SPECIAL TOPICS (HOURS VARIABLE)**Special Topics In Museum Studies**

Special topics and new courses in art history, not necessarily repeated. May be used in awarding transfer credit. Prerequisite(s): Permission of the instructor. Instructor(s): *Staff*

HART 409 INDEPENDENT STUDIES (HOURS VARIABLE)**Independent Study In Museum Studies**

Independent study, reading, or special research in art history. Prerequisite(s): Permission of the instructor. Instructor(s): *Staff*

HART 417 BURIED CITIES (3)**Buried Cities: The Art and Architecture of Akrotiri, Pompeii, & Herculaneum**

An examination of classical antiquity's best preserved cities thanks to volcanic eruptions: the Bronze Age site of Akrotiri and the Roman towns of Pompeii and Herculaneum. Art and architecture will be examined within their larger social and urban contexts. Methodological and ethical issues surrounding the excavation and preservation of these sites will also be considered. Instructor(s): *Quenemoen*

HART 418 SPECIAL TOPICS (HOURS VARIABLE)**Speical Topics In Ancient Art**

Independent study, reading, or special research in art history. Prerequisite(s): Permission of the instructor. Instructor(s): *Staff*

HART 419 INDEPENDENT STUDY (HOURS VARIABLE)**Independent Study In Ancient Art**

Independent study, reading, or special work in ancient art history. Prerequisite(s): Permission of the instructor. Instructor(s): *Staff*

HART 420 EUROPE & THE ISLAMIC WORLD (3)**Europe and the Islamic World**

This seminar aims to assess the mutual impact of the visual cultures of Europe and the Islamic world through history. Focusing on 15th-19th-century material including architecture, painting, photography, textiles, and sartorial fashion, it examines channels of interaction, forms of influence, and modes of representation in aesthetic, cultural, philosophical, and political terms, and in light of concurrent theoretical debates. Enrollment limited to 20. Instructor(s): *Hamadeh*

HART 422 THE MAKING OF THE ORIENT (3)**The Making of the Orient**

The Making of the Orient in the 18-20th Century Europe focuses on the construction of the image of the Orient in the age of European colonial expansion. Through critical analysis of texts, images, and cultural practices (painting, photography, architecture, city planning, music, fiction, and travel literature) and key theoretical works, this course examines issues of production and codification of knowledge, politics of representation, and identity construction in and beyond the colonial period. Also listed as ARCH 422. Enrollment limited to 20. Instructor(s): *Hamadeh*

HART 428 SPECIAL TOPICS (HOURS VARIABLE)**Special Topics In Early Chirstian, Byzantine, and Islamic Art**

Independent study, reading, or special research in art history. Prerequisite(s): Permission of the instructor. Instructor(s): *Staff*

(#) = credit hours per semester

HART 429 INDEPENDENT STUDY (HOURS VARIABLE)**Independent Study In Early Christian, Byzantine, and Islamic Art**

Independent study, reading, or special research in art history. Prerequisite(s): Permission of the instructor. Instructor(s): *Staff*

HART 430 THE GOTHIC PORTAL (3)**The Gothic Portal**

Seminar on the form and meaning of sculptural programs attached to French gothic cathedrals such as Chartres, Reims, and Amiens. Includes issues of iconography, style, and production, as well as more recent concerns of narrative, reception, and audience, all within the context of Medieval church doctrine and political and social life. Also offered as MDST 430. Instructor(s): *Neagley*

HART 438 SPECIAL TOPICS (HOURS VARIABLE)**Special Topics In Medieval Art**

Independent study, reading, or special research in Medieval art history. Prerequisite(s): Permission of the instructor. Instructor(s): *Staff*

HART 439 INDEPENDENT STUDY (HOURS VARIABLE)**Independent Study: Medieval Art**

Independent study, reading, or special research in Medieval art. Also offered as MDST 439. Prerequisite(s): Permission of the instructor. Instructor(s): *Staff*

HART 440 JAN VAN ECK (3)**Jan Van Eyck: Problems of Interpretation**

Seminar and in-depth research on the art and historiography of the early Netherlandish painter Jan van Eyck. Also offered as MDST 440. Instructor(s): *Neagley*

HART 441 BOSCH & BRUEGEL (3)**Bosch and Bruegel: A Seminar on the Representation of the Sacred and Profane**

The obscene, the grotesque, the humorous, and the bizarre were frequently depicted alongside sacred religious scenes, in the margins of Medieval manuscripts, beneath the seats of church canons, or in the periphery of Gothic cathedral facade sculpture. This fantastic world, along with the personifications of the Seven Deadly Sins, were often imagined as the "other" in representations of race, class, and gender. By the sixteenth century, these images had migrated into the center of paintings, especially in the work of Hieronymus Bosch and Pieter Bruegel the Elder. This course will examine the juxtapositions and complex meanings of sacred and profane imagery within the context of late Medieval and post reformation religious and social life. Also offered as MDST 451. Instructor(s): *Neagley*

HART 444 LEONARDO AND MICHELANGELO (3)**Leonardo And Michelangelo**

This course will offer a look at two of the greatest and most influential artists of all time. Students in this seminar will study the paintings, drawings, sculpture, and architecture of Leonardo and Michelangelo, as well as the philosophical and religious ideas found in their notebooks, letters, poetry, and other writings. There are no prerequisites for the course. Instructor(s): *Manca*

HART 445 ARCHITECTURE & SOCIETY (3)**Architecture and Society I: European Architecture and Architectural Theory**

This seminar examines European architecture and architectural theory from Alberti to Semper. Through the detailed consideration of a number of key buildings and theoretical texts, it investigates relationships between theory, design, and themes such as origins, orders, proportion, structure, sensation, character, type, style, and surface. Also offered as ARCH 685.

HART 448 SPECIAL TOPICS (HOURS VARIABLE)**Special Topics In Renaissance and Baroque Art**

Special topics and new courses in Renaissance and Baroque art, not necessarily repeated. May be used in awarding transfer credit. Prerequisite(s): Permission of the instructor. Instructor(s): *Staff*

HART 449 INDEPENDENT STUDY (HOURS VARIABLE)**Independent Study In Renaissance and Baroque Art**

Independent study, reading, or special research in Renaissance and Baroque art. Prerequisite(s): Permission of the instructor. Instructor(s): *Staff*

HART 450 ART, SOCIETY, AND POLITICS (3)**Art, Society, and Politics Between World War I and War II**

A study of art between World Wars I and II that is produced or used in the service of established governments and cultural values or, to the contrary, stands in protest against them. Emphasis on conditions in France, the Soviet Union, and Germany during the Weimar Republic and the Third Reich. Some consideration of examples in Mexico and the U.S. Instructor(s): *Di Palma*

(F) = Fall; (S) = Spring

HART 451 FOUR MODERN MASTERS (3)**Four Modern Masters**

Exploration of the art, life, context, and criticism of Picasso, Duchamp, Ernst, and Mondrian. Prerequisite(s): HART 351 or permission of the instructor. Instructor(s): *Di Palma*

HART 455 ARCHITECTURE & SOCIETY I (3)**Architecture and Society I**

This seminar examines European architecture and architectural theory from Alberti to Semper. Through the detailed consideration of a number of key buildings and theoretical texts, it investigates relationships between theory, design, and themes such as origins, orders, proportion, structure, sensation, character, type, style, and surface.

HART 458 SPECIAL TOPICS (HOURS VARIABLE)**Special Topics In 19th and 20th Century Art**

Special topics and new courses in 19th and 20th century art. May be used in awarding transfer credit. Prerequisite: permission of the instructor. Instructor(s): *Di Palma*

HART 459 INDEPENDENT STUDY (HOURS VARIABLE)**Independent Study In 19th and 20th Century Art**

Independent study, reading, or special research in modern Art History. May be used in awarding transfer credit. Prerequisite(s): Permission of the instructor. Instructor(s): *Di Palma*

HART 468 SPECIAL TOPICS (HOURS VARIABLE)**Special Topics In American Art**

Independent study, reading, or special research in art history. Prerequisite(s): Permission of the instructor. Instructor(s): *Brennan*

HART 469 INDEPENDENT STUDY (HOURS VARIABLE)**Independent Study In American Art**

Independent study, reading, or special research in American art. Prerequisite(s): Permission of the instructor. Instructor(s): *Brennan*

HART 470 VISUAL CULTURE IN MODERN CHINA (3)**Visual Culture in Revolutionary and Postrevolutionary China (Ca. 1949–present)**

Exploration of propaganda and avant-garde art in modern Chinese visual culture. The course will cover a wide range of materials (e.g. paintings, installation arts, propaganda posters, comic books, and films). Issues addressed include: art as social movement, the notions of political and artistic avant-garde, the structure of authoritarian art, and the paradox of counter-discourse. The course will maintain a global and comparative frame of analysis, drawing on scholarship on Soviet and Third Reich German visual cultures as well as Euro-American mass culture and avant-garde art. Also listed as ASIA 470. Enrollment limited to 15. Instructor(s): *Nakatani*

HART 472 JAPANESE ANIMATION (3)**Japanese Animation: Narrative, History, and Society**

Since the 1980s, animation has become the major force in Japanese popular culture, serving as a medium to address the diverse concerns of a high-tech media-focused society. This seminar explores the social, historical, and aesthetic significance of Japanese animation. Topics include gender and sexuality, ecological consciousness and religious imagination, folklore and history, viewership and fandom, the centrality of the fantastic and the grotesque, visions of a media- and technology-saturate society, and the prevalence of apocalyptic motifs and conspiracy theory. Also offered as HIST 472 and ASIA 472. Instructor(s): *Nakatani*

HART 477 RACE, CLASS, & GENDER IN MEX ART (3)**Race, Class, and Gender in Mexican Art**

The seminar will study representations of race, class, and gender in Mexican art from the 16th century to the present. The course will begin with the traumatic encounter of the Spanish and Mesoamerican cultures. Primary emphasis will be on 20th century art, especially on images created after the Mexican Revolution of 1910-20. Also offered as WGST 477. Enrollment limited to 15. Instructor(s): *Deffebach*

HART 478 SPECIAL TOPICS (HOURS VARIABLE)**Special Topics in Non-Western Art**

Independent study, reading, or special research in art history. Prerequisite(s): Permission of the instructor. Instructor(s): *Staff*

HART 479 INDEPENDENT STUDY (HOURS VARIABLE)**Independent Study In Non-Western Art**

Independent study, reading, or special research in non-Western art. Prerequisite(s): Permission of the instructor. Instructor(s): *Staff*

(#) = credit hours per semester

HART 480 SCORSESE, PENN, KUBRICK (4)**Seminar on Film Authorship: Scorsese, Penn, Kubrick**

Focuses on issues of authorship in film and television. Presents a structuralist and post-structuralist reading of the films of Stanley Kubrick, Martin Scorsese, and Arthur Penn. Their films will be seen in the context of the social issues of the 1960s through the 1990s. Enrollment limited to 15. Instructor(s): *Naficy*

HART 482 THIRD WORLD CINEMA (4)**Seminar on Non-Western Cinema: Thirdworld Cinema**

Study of significant national cinemas, film movements, and filmmakers of the Third World from Africa to Latin America and from the Middle East to China. Includes colonial and postcolonial discourses. Limited enrollment. Also offered as ANTH 382. Enrollment limited to 25. Instructor(s): *Naficy*

HART 483 DOCUM & ETHNOGRAPH FILM (4)**Seminar on Documentary and Ethnographic Film**

Overview of the history of documentary and ethnographic cinema from a worldwide perspective. Includes both canonical and alternative films and film movements with emphasis on the shifting and overlapping boundaries of fiction and nonfiction genres. Limited enrollment. Also offered as ANTH 483. Instructor(s): *Naficy*

HART 484 EXILE AND DIASPORA CINEMA (4)**Culture, Media, Society: Exile and Diaspora Cinema**

This course theorizes and analyzes the politics and aesthetics of the films and videos that displaced filmmakers of the world have produced since the 1960s—films that form a new accent in the language of cinema. Also offered as ANTH 484. Instructor(s): *Naficy*

HART 485 GENDER AND HOLLYWOOD 1950S (3)**Gender and Hollywood Cinema In The 1950s**

This course examines representations of gendered subjectivity in Hollywood cinema during the 1950s. Some of the topics to be addressed include the uneasy relationship between normative domesticity and heterosexual masculinity, and issues of voyeurism, eroticism, the ongoing conflict between liberated individualism and social conformity in corporate culture and bourgeois society. Enrollment is limited to 15. Also offered WGST 485. Instructor(s): *Brennan*

HART 486 STUDIES IN FILM (3)**Studies In Film**

Topics will vary from year to year. Also offered as ENGL 489. Enrollment limited to 25. Instructor(s): *Ostherr*

HART 488 SPECIAL TOPICS (HOURS VARIABLE)**Special Topics In Film and Media Studies**

Special topics and new courses in film and media studies, not necessarily repeated. May be used in awarding transfer credit. Prerequisite(s): Permission of the instructor. Instructor(s): *Naficy*

HART 489 INDEPENDENT STUDY (HOURS VARIABLE)**Independent Study In Film and Media Studies**

Independent study, reading, or special research in film and media studies. Prerequisite(s): Permission of the instructor. Instructor(s): *Naficy*

HART 490 ART & THE MIND (3)**Art and the Mind**

Exploration of topics in art history, criticism, aesthetics, philosophy, and the psychology of art. Previous art history courses desirable, but not required. Instructor(s): *McEvelley*

HART 491 UNDERSTANDING POSTMODERNISM (3)**Understanding Postmodernism**

A study of broad cultural change that is still unresolved, and still controversial. Attention will be paid to post-modern issues in history, philosophy, postcolonial studies. Marxism, feminism, and psychoanalytic theory, with less explicit attention to postmodern issues in literary criticism. The visual arts, including film, will be presented not in isolation but in a matrix of cultural wholeness. Lectures, discussion, slide and film showings. Enrollment limited to 12. Instructor(s): *McEvelley*

HART 492 CONCEPTUAL ART & ARCHITECTURE (3)**Conceptual Art and Architecture**

The first part of the course will examine the conceptual art practices that began in the 1960s, including Bochner, Kosuth, art and language, LeWitt, Haacke, Kelly, and Smithson. The second part of the course will focus on the question of what constitutes a conceptual architecture by interrogating a series of potential practices including: Super Studio, Anchigram, Eisenman, Libeskind, Shinohara, Hejduf, Tschumi, and others. Also offered as ARCH 384. Instructor(s): *Last*

(F) = Fall; (S) = Spring

HART 494 ART AND THE WORLD'S RELIGIONS (3)**Art and the World's Religions**

Art is presented as a way of thinking about reality. Slide-illustrated lectures will involve visual formulations of: origination, history, destiny, society, the individual, sexuality, gender, power, and the end of the world. Enrollment limited to 35. Instructor(s): *McEvilley*

HART 498 SPECIAL TOPICS (HOURS VARIABLE)**Special Topics in Art Theory and Criticism**

Independent study, reading, or special research in art history. Prerequisite(s): Permission of the instructor. Instructor(s): *Staff*

HART 499 INDEPENDENT STUDY (HOURS VARIABLE)**Independent Study in Art Theory and Criticism**

Independent study, reading, or special research in art history, theory, themes, and criticism. Prerequisite(s): Permission of the instructor. Instructor(s): *Staff*

HART 500 INTERNSHIP PROGRAM I (HOURS VARIABLE)**Internship Program I**

Graduate level course that will provide select students a practicum in museum work accompanied by an introduction to a history of museums, including varieties of museums, their role in society, and significant issues in museums today. Prerequisite(s): Permission of the instructor. Instructor(s): *Staff*

HART 501 INTERNSHIP PROGRAM II (HOURS VARIABLE)**Internship Program II**

Graduate level course that will provide select students a practicum in museum work accompanied by an introduction to a history of museums, including the varieties of museums, their role in society, and significant issues in museums today. Prerequisite(s): Permission of the instructor. Instructor(s): *Staff*

HART 506 ARCHITECTURE AND THE CITY II (3)**Architecture And The City II (Enlightenment Through Postmodernity)**

Graduate version of HART 206. Also offered as ARCH 686. Instructor(s): *Staff*

HART 677 RACE, CLAS, & GEND MEXICAN ART (3)**Race, Class, and Gender In Mexican Art**

The seminar will study representations of race, class, and gender in Mexican art from the 16th century to the present. The course will begin with the traumatic encounter of the Spanish and Mesoamerican cultures. Primary emphasis will be on 20th century art, especially on images created after the Mexican Revolution of 1910-20. Also offered as WGST 487. Enrollment limited to 15. Instructor(s): *Deffebach*

HART 682 THIRD WORLD CINEMA (4)**Seminar on Non-Western Cinema: Third World Cinema**

Graduate version of HART 482. Also offered as ANTH 682. Prerequisite(s): Permission of the instructor. Instructor(s): *Naficy*

HART 683 DOCUMENTARY/ETHNOGRAPHIC FILM (4)**Seminar on Documentary and Ethnographic Film**

Graduate version of HART 483. Also offered as ANTH 683. Prerequisite(s): Permission of the instructor.

HART 684 EXILE AND DISPORA (4)**Culture, Media, Society: Exile and Diaspora Cinema**

This course theorizes and analyzes the politics and aesthetics of the films and videos that displaced filmmakers of the world have produced since the 1960s-films that form a new accent in the language of cinema. Also offered as ANTH 684. Prerequisite(s): Permission of the instructor. Instructor(s): *Naficy*

HART 689 INDEPENDENT STUDY (HOURS VARIABLE)**Independent Study in Film and Media Studies**

Independent study, reading, or special research in film & media studies on the graduate level. Instructor(s): *Naficy*

HEAL (HEALTH SCIENCES)**School of Humanities/Kinesiology****HEAL 103 NUTRITION (3)****Nutrition**

Concepts underlying the science of nutrition: food composition, calories and needs for energy, special nutrients, and nutritional deficiencies. Enrollment limited to 50.

(#) = credit hours per semester

HEAL 119 CONCEPTS IN HEALTH SCIENCE (3)**Concepts In Health Science**

Designed to acquaint prospective health educators with the structure and function of health in our society. Enrollment limited to 50.

HEAL 132 MEDICAL TERMINOLOGY (1)**Medical Terminology**

This course introduces the student interested in medical and health professions to a large vocabulary of medical language which develops skills in understanding and remembering new words. It describes word origins, basic terms in anatomy and terms pertaining to each body system as well as pharmacology and medical equipment, and many frequently used medical terms, abbreviations and symbols.

HEAL 201 INTRO-ENVIRONMENTAL SYSTEMS (3)**Intro-Environmental Systems**

The chemical, physical, and biological components of the environment as natural resources and the effects of pollution on their maintenance and utilization. Lecture (TTH 10:50am-12:05pm) and laboratory (W 2-5pm) are required. Also offered as ENVI 201.

HEAL 206 FIRST AID/EMERGENCY CARE CPR (1)**First Aid/Emergency Care CPR**

American Red Cross certification program for emergency care procedures for illness, traumatic injuries, and cardiopulmonary resuscitation. Advanced permission of department required. Also offered as KINE 206. Enrollment limited to 25.

HEAL 212 CONSUMER HEALTH AND THE MEDIA (3)**Consumer Health and the Media**

Study of factual information and guidelines that enable consumers to act intelligently in selecting health products and services, with emphasis on the economic aspects of health.

HEAL 222 PRIN PUBLIC&COMMHEALTH (3)**Principles of Public and Community Health**

Principles of Public & Community Health examines aspects of the community that relate to health including: identification and analysis of community health programs; organizational pattern and functions of voluntary and governmental health agencies; organizing the community for health action; and coordination of community health programs

HEAL 308 EMT:INTRO EMERG CARE I (3)**EMT Basic: Introduction to Emergency Care I**

Emergency medical technician course designed to develop the knowledge and skills necessary to recognize the symptoms of various illnesses and injuries as well as the competency in the appropriate treatment for these conditions in the appropriate treatment for these conditions in the pre-hospital environment. Enrollment limited to 10.

HEAL 310 EMT: INTRO EMERG CARE II (3)**EMT Intermediate: Introduction to Emergency Care II**

Designed to expand upon the EMT basic introductory course. Enrollment limited to 20.

HEAL 313 FOUNDATIONS OF HEALTH PROMOT. (3)**Foundations of Health Promotional Education**

Foundations of Health Promotion/Health Education is designed to introduce students to the discipline of health education and the practice of health promotion. The course explores critical issues in the field of health promotion, accountability and professional preparation, professional ethics, credentialing and the changing technology in the field.

HEAL 350 UNDERSTANDING CANCER (3)**Understanding Cancer**

Examination of cancer from a biological, psychological and sociological perspective with emphasis on cancer epidemiology, prevention, and early detection.

HEAL 360 INTERNATIONAL HEALTH PROBLEMS (3)**Special Topics Section 001: Violence In America: A Public Health Perspective:**

Disparities in Health in America is a speaker's series seminar that examines the social and societal factors that are fundamental in creating disparities in health. The course will focus on the formulation of public policy objectives to reduce and ultimately eliminate health disparities.

HEAL 379 INTERNSHIP IN HEALTH SCIENCES (3)**Internship In Health Sciences**

Internship experience for upper-level students in health sciences track.

(F) = Fall; (S) = Spring

HEAL 407 EPIDEMIOLOGY (3)**Epidemiology**

Study of communicable, noncommunicable, and behavioral diseases with emphasis on the disease process and basic epidemiologic methods. Enrollment limited to 25.

HEAL 410 PROG DEV IN HEAL EDUC (3)**Program Development In Health Education**

Content and methods in teaching health education; program materials and curriculum construction in secondary school health education programs. Required for Teaching Certification in Health.

HEAL 422 THEORY & MODELS HLTH BEHAVIOR (3)**Theories and Models of Health Behavior**

Theories & Models of Health Behavior is designed for the student interested in public and community health or health psychology. This course examines the current theories and models of health behavior and their application to the field of health promotion/education. Prerequisite(s): Junior and senior students.

HEAL 460 PLAN HEALTH EDUCATION (3)**Planning and Evaluation of Health Promotion and Education**

Planning & Evaluation of Health Promotion provides the student with the technical skills for planning and evaluation of health promotion, health education, and disease prevention programs including both qualitative and quantitative methods of evaluation.

HEAL 485 SEM: INTER'L HEALTH PROBLEMS (3)**Seminar on International Health Problems**

This upper level seminar on International Health is designed to increase student's awareness of the multiple dimensions and complexities involved in understand the health of people from diverse geographic, political, economic, and cultural backgrounds. The seminar will explore issues and concepts of delivery and acceptance of health care, traditional health belief customs and practices, policy, epidemiology and public health problems, demographic and environmental characteristics among selected worldwide populations. Prerequisite(s): Permission of instructor. Instructor(s): *Iammarino*

HEAL 495 INDEPENDENT STUDIES (HOURS VARIABLE)**Independent Studies**

For junior and senior students only. Permission of advising and Program Development Committee.

HEAL 496 INDEPENDENT STUDY (3)**Independent Study**

For junior and senior students only.

HEAL 498 SPECIAL TOPICS (3)**Special Topics**

Topics vary from year to year.

HEAL 499 TEACHING PRACTICUM (HOURS VARIABLE)**Teaching Practicum**

Teaching experience for upper level students who have excelled in one area of health sciences.

HEBR (HEBREW)**School of Humanities/Center for Study of Languages****HEBR 101 INTRO MODERN HEBREW I (5)****Introduction to Modern Hebrew Language and Culture I**

Proficiency based course that employs a variety of instructional techniques including audio-visual materials and Internet based exercises in order to facilitate all communicative skills: listening-comprehension, speaking, reading and writing. Aspects of Israeli culture will be introduced. Enrollment limited to 20. Prerequisite(s): No prior knowledge of Hebrew. Instructor(s): *BarOn, Tiqva*

HEBR 102 INTOR TO MODERN HEBREW II (5)**Intro to Modern Hebrew Language and Culture II**

Proficiency based course that employs a variety of instructional techniques including multimedia and Internet based exercises in order to enhance communicative skills. Emphasis will be put on students' presentations skills (written and verbal). Aspects of Israeli culture will be introduced. Enrollment limited to 20. Prerequisite(s): *HEBR 101*, placement test, or permission of the instructor. Instructor(s): *BarOn*,

(*) = credit hours per semester

HEBR 201 INTERMEDIATE MODERN HEBREW I (4)**Intermediate Modern Hebrew Language and Culture I**

This course will continue to build up students' proficiency in understanding, speaking, reading and writing by using traditional methods of instruction and multimedia as well. Students will interact with authentic material from Israeli culture such as feature films, radio broadcasts and newspaper articles. Emphasis will be put on self-expression in the language. Enrollment limited to 20. Prerequisite(s): HEBR 102, placement test, or permission of the instructor. Instructor(s): *BarOn*

HEBR 398 INDEPENDENT STUDIES (3)**Independent Studies****HIND (HINDI)****School of Humanities/Center for Study of Languages****HIND 101 ELEMENTARY HINDI I (5)****Elementary Hindi I**

An in-depth introduction to modern Hindi including the Devanagari script. In an intellectually challenging environment, through a combination of graded texts, written assignments, audio-visual material and computer-based exercises, this course provides cultural insights and increases proficiency in understanding, speaking, reading and writing Hindi. Emphasis is on spontaneous self-expression in the language. No prior background in Hindi assumed. Enrollment limited to 20. Prerequisite(s): No prior knowledge of Hindi. Instructor(s): *Shah*

HIND 102 ELEMENTARY HINDI II (5)**Elementary Hindi II**

In an intellectually challenging environment, through a combination of graded texts, written assignments, audio-visual material including contemporary Hindi films and songs, and computer based assignments, this course increases proficiency in understanding, speaking, reading, and writing Hindi. Emphasis is placed on spontaneous self-expression in the language. Enrollment limited to 20. Prerequisite(s): Hindi 101 or permission of instructor. Instructor(s): *Shah, Gautami*

HIND 201 INTERMEDIATE HINDI (5)**Intermediate Hindi**

Through extensive use of cultural documents including films, radio broadcasts, and graded literary and non-literary texts, this course builds students' proficiency in Hindi. Provides space for meaningful interaction with authentic materials and their related cultures. Furthers the student's appreciation of cultural nuances. Emphasis is placed on spontaneous self-expression in Hindi. Prerequisite(s): HIND 102 or permission of instructor. Instructor(s): *Shah*

HIND 202 INTERMEDIATE/ADVANCED HINDI (5)**Intermediate/Advanced Hindi**

Through use of cultural documents including films, radio broadcasts, and newspaper articles, this course builds students' proficiency in Hindi. Introduction of Hindi Literary traditions, provides space for meaningful interaction with authentic materials and furthers the student's appreciation of cultural nuances. Prepares students for further academic and nonacademic use of Hindi. Enrollment limited to 20. Prerequisite(s): HIND 201 or permission of the instructor.

HIND 335 S ASIAN LIT, POETRY, POP CUL I (3)**South Asian Literature, Poetry, and Popular Culture I**

Focus will vary each year depending on both, the needs and interests of the students in the class, as well as contemporary issues. Readings range from classical, to modern 20th century literature and poetry. Various art forms, including theater and film, will be thematically related to the readings. Prerequisite(s): HIND 202 or permission of instructor. Instructor(s): *Shah*

HIND 336 SEMINAR IN SOUTH ASIAN LIT (3)**Seminar in South Asian Literature, Poetry, and Popular Culture II**

HIND 336 consolidates and builds on the fifth semester Hindi course HIND 335. Continues to build student proficiency in understanding, speaking, writing and thinking in Hindi. Prepares the student for further academic and non-academic use of Hindi. Emphasis is placed on spontaneous self expression in the language. Enrollment limited to 15. Prerequisite(s): HIND 335. Instructor(s): *Staff*

HIND 398 HINDI TEACHING PRACTICUM (HOURS VARIABLE)**Hindi Teaching Practicum**

Students will work with instructor closely to acquire teaching skills in tutoring in Hindi. Near Native proficiency is required. Instructor(s): *Staff*

(F) = Fall; (S) = Spring

HIND 399 HINDI TEACHING PRACTICUM (HOURS VARIABLE)**Hindi Teaching Practicum**

Students will work with instructor closely to acquire teaching skills in tutoring in Hindi. Near Native proficiency is required. Instructor(s): *Staff*

HIND 498 INDEPENDENT STUDY (HOURS VARIABLE)**Independent Study**

Prerequisite(s): Permission of the instructor. Instructor(s): *Staff*

HIND 499 INDEPENDENT STUDY (HOURS VARIABLE)**HIST (HISTORY)****School of Humanities/History****HIST 101 MODERN EUROPE, 1450-1789 (3)****Modern Europe, 1450-1789**

This course provides an introduction to European history from 1500 to the French Revolution, tracing Europe's rise to world dominance via capitalism, the nation-state, science and technology, and a secular world view. It asks how conditions in the rest of the world allowed European imperialism and colonialism to triumph. Instructor(s): *Zammito*

HIST 102 MODERN EUROPE, 1789-PRESENT (3)**Modern Europe, 1789-Present**

This course provides an introduction to European history between the French Revolution and the collapse of the Soviet system in 1989-1990. The course examines industrialization, the development of the nation-state, World War One, Fascism and Communism, World War Two, European integration, decolonization and the Velvet Revolutions of 1989. Instructor(s): *Cohen*

HIST 108 WORLD HISTORY SINCE 1492 (3)**World History Since 1492**

Class will explore the last 500 years of world history. The focus will be four long-term processes that have shaped the world today: struggles between Europeans and colonized peoples; forms of producing and exchanging goods; formation and spread of the modern state; and the development of 'bourgeois' ways of living. Instructor(s): *Wildenthal, Ward*

HIST 113 GOD, TIME, AND HISTORY (3)**God, Time, and History**

How is the passage of time given meaning, and what role--if any--is assigned to divinity in shaping the direction of events? Course explores various forms of recording and interpreting events, drawing from ancient Mesopotamia, Israel, and the Greco-Roman world. Also offered as RELI 123 and HUMA 113. Course not offered 2004-2005. Instructor(s): *Maas, Henze*

HIST 117 THE UNITED STATES, 1776-1877 (3)**The United States, 1776-1877**

Survey of American social, political, and economic history from the early republic through the Civil War and Reconstruction, with emphasis on industrialization and the history of labor, women's history, and race relations. Instructor(s): *Staff*

HIST 118 THE UNITED STATES, 1877-PRESENT (3)**The United States, 1877-Present**

A continuation of HIST 117 (though 117 is not a prerequisite) from the Reconstruction to the present. Instructor(s): *Lichtenstein*

HIST 144 THE ARAB-ISRAELI CONFLICT (3)**Freshman Seminar: The Arab-Israeli Conflict**

Seminar traces the history of politics of the Arab-Israeli conflict, delving into both Palestinian and Israeli understandings of the past and present using books, documentaries, and films. The course seeks to understand how Israeli and Palestinian nationalisms have been constructed and analyzes U.S. involvement in the conflict. Also offered as FSEM 144. Enrollment limited. Course not offered 2004-2005. Instructor(s): *Makdisi*

HIST 151 THE HERO & HIS COMPANION (3)**Freshman Seminar: The Hero and His Companion from Gilgamesh to Sam Spade**

How does presentation of heroic action illustrate the basic values of society? Historical sources including ancient texts, modern mystery stories, and two "western" movies, show the development of a style of community service linking heroism with alienation. The extent to which women participate will be traced. Also offered as FSEM 151. Limited enrollment. Instructor(s): *Maas*

(*) = credit hours per semester

HIST 160 JEFFERSON & THE REPUBLIC (3)**Freshman Seminar: Jefferson and the Origins of the Republic**

Examination of the most talented of the U.S. Founding Fathers and how he helped define the country's revolutionary ideals, diplomacy, and politics, as well as its public lands, domestic architecture, religion, practice of slavery, and education. Includes readings, discussions, and essays. Also offered as FSEM 160. Limited enrollment. Course not offered 2004-2005. Instructor(s): *Gruber*

HIST 161 THE USES OF THE PAST (3)**Freshman Seminar: The Uses of the Past**

Seminar analyzes how selected historical events are interpreted at different times and contexts. Sources include history books, novels, movies, court cases, and political debates. Specific events studied will vary according to student interest from ancient times to the present. Also offered as FSEM 161. Limited enrollment. Course not offered 2004-2005. Instructor(s): *Quillen*

HIST 168 THE WORLD OF ARABIAN NIGHTS (3)**Freshman Seminar: The World of the Arabian Nights**

Seminar on the social and cultural world of the stories of the 1001 nights. Readings and discussions reveal how they became famous in Europe and a source for western images of the Islamic World. Source materials range from translations and similar stories from different traditions to modern movies and TV shows. Also offered as FSEM 168 and MDST 168. Limited enrollment. Course not offered 2004-2005. Instructor(s): *Sanders*

HIST 176 TERROR & AFR AM HISTORY (3)**Freshman Seminar: Rope and Faggot—Terror and African American History from the Hamburg Massacre to the Murder of James Byrd**

From the 1880s to 1968, lynch mobs murdered nearly 5,000 African-Americans. Terror and black responses to it have shaped nearly every aspect of African American history. This seminar examines black society, politics, gender, and culture in 20th century America against the backdrop of racial violence. Also offered as FSEM 176. Limited enrollment. Course not offered 2004-2005. Instructor(s): *Byrd*

HIST 188 THE ATLANTIC WORLD (3)**The Atlantic World: Origins to the Age of Revolution**

Survey of social, political, economic, and intellectual ligatures which bound the particular histories of Africa, Europe, and the Americas one to the other, till by the late 18th century the Atlantic basin constituted a world unto itself. Offered with additional work as HIST 388. Course not offered 2004-2005. Instructor(s): *Byrd*

HIST 200 ORIGINS OF WESTERN CIVILIZATIONS (3)**Origins of Western Civilizations: Athens, Rome, and Jerusalem**

Course explores development of imperial systems from the Bronze Age to Roman Empire with attention to subject peoples' participation in multi-ethnic states. Aspects of art, law, economics, religion, and literature of the Hittites, Assyrians, Persian, Greeks, and Romans examined with consideration given to strengths and weaknesses of contributions to the modern world. Course not offered 2004-2005. Instructor(s): *Maas*

HIST 202 INTRO MEDIEVAL CIVILIZATION, I (3)**Introduction to Medieval Civilization: The Early Middle Ages**

Introduction to the European culture of the "Dark Ages," from the fall of Rome to the end of the Viking invasions. Includes the use of historical, literary, artistic, and archaeological sources to trace changes in European material, spiritual, and cultural life between 300 and 1000 AD. Also offered as MDST 202. Course not offered 2004-2005. Instructor(s): *Staff*

HIST 203 INTRO MEDIEVAL CIVILIZATION, II (3)**Introduction to Medieval Civilization: The High Middle Ages**

European culture from the year 1000 to the discovery of the Americas, which encompasses the Crusades, the "discovery of the individual," chivalry and chivalric literature, the Black Death, and the beginnings of the Age of Exploration. Also offered as MDST 203. Instructor(s): *Haverkamp*

HIST 206 INTRO TO ASIAN CIVILIZATIONS (3)**Introduction to Asian Civilizations**

Introduction to the great cultural traditions of Asia, past and present, with emphasis on evolving religious and philosophical traditions, artistic and literary achievements, and patterns of political, social, and economic change. Also offered as ASIA 211. Limited enrollment. Instructor(s): *Thal, Klein*

HIST 207 GREEK CIVILIZATION (3)**Greek Civilization from Homer to Alexander The Great**

Overview of the literary, artistic, and intellectual achievements of classical Greek civilization from Homer and the Bronze Age through the golden age of classical Athens to the spread of Greek culture in the Hellenistic world. Includes historical background and readings in primary sources. Also offered as CLAS 207 and HUMA 109. Enrollment limited to 25. Instructor(s): *Yunis*

HIST 211 AMERICAN THOUGHT & SOCIETY, I (3)**American Thought and Society, I**

Survey of 17th and 18th century American history, with emphasis on intellectual and social developments underlying the surface of events. Offered with additional work as HIST 311. Course not offered 2004-2005. Instructor(s): *Haskell*

HIST 212 AMERICAN THOUGHT & SOCIETY, II (3)**American Thought and Society, II**

Continuation of HIST 211. Includes 19th and 20th century American history. May take HIST 211 and HIST 212 separately. Offered with additional work as HIST 312. Course not offered 2004-2005. Instructor(s): *Haskell*

HIST 214 CARIBBEAN NATION BUILDING (3)**Caribbean Nation Building**

This course will focus on the slow, steady process through which nation states emerged in the Caribbean from the 18th century to the present, as well as the difficulties they face amidst increasing globalization. Offered with additional work as HIST 314. Instructor(s): *Cox*

HIST 215 BLACKS IN THE AMERICAS (3)**Blacks in the Americas**

This comparative survey of black people in the Americas for 1619 to the present examines the Atlantic slave trade, the movement toward slave emancipation in various countries, and 19th century black self-help efforts. The course also concentrates on economic conditions for blacks at the turn of the 20th century. Offered with additional work as HIST 315. Course not offered 2004-2005. Instructor(s): *Cox, Byrd*

HIST 219 FORTUNE-TELLERS & PHILOSOPHERS (3)**Fortune-Tellers and Philosophers: The Role of Divination In Chinese History**

Course will examine the way fortune-telling beliefs and practices -- use of "oracle bones", consultation of the "I-ching" (Book of Changes), physiognomy, spirit-writing, fengshui--have evolved over 3000 years in China. Focus will be how these practices have traveled to other countries; and exploring political, social and cultural significances. Offered with additional work as HIST 319. Instructor(s): *Smith*

HIST 220 CONTEMPORARY CHINA (3)**Contemporary China**

This introductory course is designed to encourage creative ways of thinking about "Cultural China"--a broad-ranging concept that includes the People's Republic of China, the newly established Special Administrative Region (SAR) of Hong Kong, the Republic of China on Taiwan, and overseas Chinese communities throughout the world. Offered with additional work as HIST 310. Course not offered 2004-2005. Instructor(s): *Smith, Lewis*

HIST 221 JAPAN IN THE WORLD UNTIL 1800 (3)**Japan In the World Until 1800**

Survey of the cultural, social, and economic development of pre-modern Japan within a regional and world context, focusing on the origins of the Japanese people; contentious relations between Korea and Japan; importance of Japan in European expansion; and relations to a vibrant intellectual and cultural world in East Asia. Offered with additional work as HIST 321. Instructor(s): *Thal*

HIST 222 JAPAN IN THE WORLD SINCE 1800 (3)**Japan in the World Since 1800**

Examination of the modern history of Japan in the context of its relations with the rest of the world, focusing on the "opening" of Japan; patterns of democracy; imperialism and war; international trade; and cultural globalization. Offered with additional work as HIST 322. Course not offered 2004-2005. Instructor(s): *Thal*

HIST 223 MEDIEVAL EMPIRES (3)**Empires and Communities in the Middle Ages**

Course will explore the political, social, and economic conceptions of the Byzantine and Holy Roman Empires. Examining the self-perceptions of the Empire; the role of Roman tradition and languages; notions of (geographical) borders and nations; different constitutions in political representation, administration, and economic organization. Offered with additional work as HIST 323. Also offered as MDST 223. Course not offered 2004-2005. Instructor(s): *Haverkamp*

HIST 225 EUROPE SINCE 1945 (3)**Europe Since 1945**

The course surveys the history of Europe from the end of World War II to 1989. The course focuses on the impact of the war on European societies as well as on decolonization, European unification, economic reconstruction and immigration and the rise and fall of communism in Eastern Europe. Instructor(s): *Cohen*

(#) = credit hours per semester

HIST 228 MODERN LATIN AMERICA (3)**Modern Latin America**

Lecture course examining the creation of modern Latin America. Concentrating of the struggles over land and labor, the creation of nation-states, and the conflicts within those states over issues of citizenship and social justice. This course will also address the contentious role of the United States has played in the region. Course not offered in 2004-2005. Instructor(s): *Wolfe*

HIST 231 AFRICA TO 1884 (3)**Africa to 1884**

Survey of the changing historiography of Africa. Includes the emergence of the Bantu, early Christianity and Islam, trans-Saharan trade, medieval Sudanic empires, statelessness and state formation, Portugal in Africa, the slave trade, the Mfecane, the Sudanic jihads, long-distance trade, and African-European relations in the 19th century.

Instructor(s): *Odbiamba*

HIST 232 THE MAKING OF MODERN AFRICA (3)**The Making of Modern Africa**

Survey of the transformation of Africa from the late 19th century to the present. Includes the partition of Africa and colonial states; economic and social changes in the 20th century; political developments; and Africa since independence. Instructor(s): *Odbiamba*

HIST 235 THE WORLD & THE WEST (3)**The World and the West**

Introduction to the last 500 years of world history, focusing on processes that define the modern period. Topics include industrialization, democratization, colonialism, and emergence of new forms of cultural production with exploration of how and why such processes have come to divide the modern world into "west" and a "non-west". Offered with additional work as HIST 365. Also offered as HUMA 235. Not offered 2004-2005. Instructor(s): *Quillen, Makdisi*

HIST 241 U.S. WOMEN'S HISTORY, I (3)**U.S. Women's History: Colonial Beginnings to the Civil War**

Survey of American women's history examines the lives of elite, working, black, Indian, and white women, and traces changes in women's legal, political, and economic status from the mid-17th century through the Civil War. Topics include slavery, suffrage, sexuality, and feminism. Also offered as WGST 234. Instructor(s): *Sneider*

HIST 242 U.S. WOMEN'S HISTORY, II (3)**U.S. Women's History: Civil War to the Present**

Survey of American women's history examines the lives of black, Asian American, Chicana, Native American, and white women, and traces changes in women's legal, political, and economic status from the Civil War to the present. Topics include suffrage, anti-lynching, welfare, birth control, and the modern civil rights and feminist movements. Also offered as WGST 235. Instructor(s): *Sneider*

HIST 250 TRADITIONAL CHINESE CULTURE (3)**Traditional Chinese Culture**

Introduction to the language, philosophy, religion art, literature, and social customs of the Qing Dynasty (1644-1912)-the most expansive consolidated regime in all of Chinese history, and a crucial bridge between "traditional" and "modern" China. Offered with additional work as HIST 368. Instructor(s): *Smith*

HIST 254 CULTURE & SOCIETY POST-1945 GERM (3)**Culture and Society in Post-1945 Germany**

Course examines German politics and societies under Allied administration (West and East Germany 1949-1989) and the Federal Republic since 1990. Topics include democracy; post-1945 responses to Nazism; political economies; challenges of the "new social movements", and national identity in context of European unification and global migration. Course not offered 2004-2005. Instructor(s): *Wildenthal*

HIST 256 EUR POLITICS & SOCIETY, 1890-1945 (3)**European Politics and Society, 1890-1945**

Examination of European history in the age of total war. Includes imperialism and the development of the welfare state, institutional responses to the demands of total warfare, the crisis of liberal constitutionalism, the Russian Revolution, and the rise of fascism. Course not offered 2004-2005. Instructor(s): *Caldwell*

HIST 257 JEWS&CHRISTIANS-MEDIEVAL EUR (3)**Jews and Christians in Medieval Europe**

Course will study relationships between Jewish and Christian communities within the context of Christian Europe. Topics will include settlement and demography; economics; legal status; hostility against Jews; family and the position of women; communal organizations; social diversity; and intellectual and spiritual achievements. Offered with additional work as HIST 357. Also offered as MDST 257. Instructor(s): *Haverkamp*

(F) = Fall; (S) = Spring

HIST 262 ROME: CITY AND EMPIRE (3)**Rome: City and Empire**

An introduction to the history of Rome from its origins to its collapse in western Europe ca 500 A.D. Emphasis is on the development of the city of Rome as the center of an evolving empire, seen through its monuments, buildings, art, and literature. Instructor(s): *Maas*

HIST 268 FORCED MIGRATION (3)**Forced Migration In Global Perspective**

Convict transportation existed as a global phenomenon from the early modern era and was embedded in the first wave of European imperialism. This survey course explores penal transportation within the broader context of forced migration, examining the complexities of early colonial settlements in the Americas, Africa, Asia and Australia. Course not offered 2004-2005. Instructor(s): *Ward*

HIST 269 WORLD HISTORY THROUGH GAMES (3)**World History Through Games**

Survey of world history using computer games from 1300 B.C. to the present, emphasis will be placed upon human interaction with geology, environment and diseases. Limited enrollment. Course not offered 2004-2005. Instructor(s): *Seed*

HIST 270 SOUTH AFRICA & INDONESIA (3)**South Africa and Indonesia: Empire to Nation**

Survey examines the histories of modern South Africa and Indonesia from the earliest indigenous societies of the present. Focus on the role of the Dutch Indian Ocean Empire; South Africa under British rule; and the rise of nationalism and dramatic transitions to democracy in the 20th century. Course not offered in 2004-2005. Instructor(s): *Ward*

HIST 274 JEWISH HISTORY, 1500-1948 (3)**Jewish History, 1500-1948**

History of the Jews' expulsion from Spain to the establishment of the state of Israel. Life in western and eastern Europe as well as in Islamic countries, seen from the perspective of settlement, assimilation, and the particularities of the Jewish historical experience. Offered with additional work as HIST 374. Course not offered 2004-2005. Instructor(s): *Haverkamp*

HIST 277 OTTOMAN EMPIRE, 1453-1918 (3)**History of the Ottoman Empire, 1453-1918**

This course surveys the political, social, economic, and cultural history of the Ottoman Empire. Offered with additional work as HIST 377. Course not offered 2004-2005. Instructor(s): *Makdisi*

HIST 278 MODERN ARAB HISTORY (3)**The Arab World In the 20th Century, 1918 to Present**

Survey of the history and culture of the Arab world from World War I to the present. Topics include nationalism, colonialism, and Orientalism as understood and discussed in the contemporary Arab world through debates about Palestine, status of women, and rise of modern Islamic politics. Offered with additional work as HIST 378. Course not offered in 2004-2005. Instructor(s): *Makdisi*

HIST 279 THE CARIBBEAN IN REVOLUTION (3)**The Caribbean in the Age of Revolution, 1770-1820**

An examination and analysis of Caribbean societies as they sought to adjust to forces unleashed by the American and French Revolutions and amidst mounting antislavery sentiment in the western world. Offered with additional work as HIST 379. Instructor(s): *Cox*

HIST 281 PREMODERN MIDDLE EAST HISTORY (3)**The Middle East from the Prophet Muhammad to Muhammad Ali**

Introduction to the Middle East from the rise of Islam to the beginning of the 19th century. Topics include conquests and classical Islamic states, Arabization, Jewish and Christian communities, impact of Turkic peoples, and the Ottoman Empire, with emphasis on social, cultural, and political trends which shaped the region's history. Also offered as MDST 281. Course not offered 2004-2005. Instructor(s): *Sanders*

HIST 283 WOMEN IN MODERN ISLAMIC WORLD (3)**Women in the Modern Islamic World**

This course introduces students to the history of women in the Islamic world. Topics include women and law, family relations, work, women as political actors in Islamic history, the harem as a social and political institution, women as property owners, veiling, and modern feminist movements throughout the Islamic world. Also offered as WGST 283. Course not offered 2004-2005. Instructor(s): *Sanders*

HIST 286 THE REFORMATION & ITS RESULTS (3)**The Reformation and Its Results**

Theology and church-state issues from the 16th century Reformation to the 17th century; medieval background; Luther and Calvin, the Catholic Reformation; religious wars; Protestant Orthodoxy; Pietist spirituality; Puritanism; and calls for toleration. Also offered as RELI 286. Instructor(s): *Stroup*

HIST 289 GREEK & LATIN READINGS (1)**Greek and Latin Readings**

Independent reading in selected Greek and Latin texts. Taken in conjunction with an undergraduate history course. Offered by permission of instructor only. Instructor(s): *Maas*

HIST 293 WAR-MACHIAVELLI TO NAPOLEON (3)**The Art of War from Machiavelli to Napoleon**

Study of the theory and practice of warfare from the 15th century to the early 19th century. Includes Machiavelli, Saxe, and Napoleon. Offered with additional work as HIST 393. Course not offered 2004-2005. Instructor(s): *Gruber*

HIST 294 WAR IN THE MODERN WORLD (3)**War in the Modern World**

Study of the theory, practice, and experience of war in the 19th and 20th centuries. Includes Clausewitz, Remarque, and Fuchida. Offered with additional work as HIST 394. Course not offered 2004-2005. Instructor(s): *Gruber*

HIST 295 THE AMERICAN SOUTH (3)**The American South**

Survey of the American South from development of Native American cultures to present. Topics include slavery and plantation economy; emergence of southern distinctiveness; Civil War and Reconstruction; political reform and the civil rights movement; rise of the Sunbelt, southern religion, music, and literature; and the future of southern regionalism. Offered with additional work as HIST 395. Course not offered 2004-2005. Instructor(s): *Boles*

HIST 300 INDEPENDENT STUDY (HOURS VARIABLE)**Independent Study**

Independent study under the supervision of a history faculty member. Hours are variable. Prerequisite(s): Permission of instructor. Instructor(s): *Staff*

HIST 305 RUSSIAN HISTORY (3)**Russian History**

Survey of Russian history from earliest times to present. Course not offered 2004-2005. Instructor(s): *Stokes*

HIST 307 IMPERIAL ROME (3)**Imperial Rome from Caesar to Diocletian**

Examination of how Rome acquired, maintained, and understood her empire. Includes the development of a political, social, and ideological system reaching from Scotland to Mesopotamia during the three centuries of Rome's greatest power. Course not offered 2004-2005. Instructor(s): *Maas*

HIST 308 THE WORLD OF LATE ANTIQUITY (3)**The World of Late Antiquity**

Study of the social, religious, and political history of the Roman world from Diocletian to the rise of Islam, with emphasis on the breaking of the unity of the Mediterranean world and the formation of Byzantine society in the Greek East. Also offered as MDST 308. Instructor(s): *Maas*

HIST 310 CONTEMPORARY CHINA (3)**Contemporary China**

An enriched version of HIST 220. May not receive credit for both HIST 220 and 310. Course not offered 2004-2005. Instructor(s): *Smith, Lewis*

HIST 311 AMERICAN THOUGHT & SOCIETY, I (3)**American Thought and Society, I**

Enriched version of HIST 211. Students may not receive credit for both HIST 211 and 311. Course not offered 2004-2005. Instructor(s): *Haskell*

HIST 312 AMERICAN THOUGHT & SOCIETY, II (3)**American Thought and Society, II**

An enriched version of HIST 212. Students may not receive credit for both HIST 212 and 312. Course not offered 2004-2005. Instructor(s): *Haskell*

HIST 313 MODERN MEXICO (3)**Modern Mexico**

Lecture and discussion course examining the roots of the Mexican Revolution with the development of the coalitions of peasants, workers, and middle-class politicians that participated in the 1910-1917 revolution and the slow institutionalization that followed. Not offered 2004-2005. Instructor(s): *Wolfe*

(F) = Fall; (S) = Spring

HIST 314 CARIBBEAN NATION BUILDING (3)**Caribbean Nation Building**

Enriched version of HIST 214. May not receive credit for both HIST 214 and 314. Instructor(s): *Cox*

HIST 315 BLACKS IN THE AMERICAS (3)**Blacks in the Americas**

Enriched version of HIST 215. May not receive credit for both HIST 215 and 315. Course not offered 2004-2005.

Instructor(s): *Cox, Byrd*

HIST 316 INVENTIN OF PAGANISM (3)**Invention of Paganism in the Roman Empire**

Course examines the concept of "paganism" from the first through the seventh centuries A.D. Includes examination of the mutually tolerant character of Roman religions, invention of the category, and Christian application to all polytheists of the empire and beyond. Also offered as CLAS 318 and RELI 316. Course not offered 2004-2005.

Instructor(s): *Staff*

HIST 319 FORTUNE-TELLERS & PHILOSOPHEHS (3)**Fortune-Tellers and Philosophers**

Enriched version of HIST 219. May not receive credit for both HIST 219 and 319. Instructor(s): *Smith*

HIST 321 JAPAN IN THE WORLD UNTIL 1800 (3)**Japan in the World Until 1800**

Enriched version of HIST 221. May not receive credit for both HIST 221 and 321. Instructor(s): *Thal*

HIST 322 JAPAN IN THE WORLD SINCE 1800 (3)**Japan in the World Since 1800**

Enriched version of HIST 222. May not receive credit for both HIST 222 and 322. Course not offered 2004-2005.

Instructor(s): *Thal*

HIST 323 MEDIEVAL EMPIRES (3)**Empires and Communities in the Middle Ages**

Enriched version of HIST 223. May not receive credit for both HIST 223 and 323. Also offered as MDST 323. Course not offered 2004-2005. Instructor(s): *Haverkamp*

HIST 324 NAVIGATION & CARTOGRAPHY (3)**Navigation and Cartography**

Navigation and cartography changed more rapidly in the period from 1400 to 1600 than in any other period prior to the 20th century. Topics covered include the history of projections, origin of latitude and longitude scales, compass roses, ship design, and related subjects. See <http://www.rice.edu./latitude>. Instructor(s): *Seed*

HIST 327 HISTORY OF CARTOGRAPHY (3)**History of Cartography**

Geography is not destiny, nor is its art of representation, cartography. Map-making sits on the frontier between art and science, a boundary that has shifted across time and cultures. The first part of the course covers different conceptions of mapping; the second, the origin of the science of cartography. Course not offered 2004-2005.

Instructor(s): *Seed*

HIST 328 LATIN AMERICAN GENDERS (3)**Latin American Genders**

Course examines diversity of Latin American cultures and gender relations from modern urban societies to Indian peasant villages. Also offered as WGST 328. Course not offered 2004-2005. Instructor(s): *Wolfe*

HIST 330 ORIGINS OF AFRO-AMERICA (3)**Origins of Afro-America**

Survey of major issues and events in the formation of modern Afro-America from the 15th to late 18th century. Course not offered 2004-2005. Instructor(s): *Byrd*

HIST 334 AMERICAN RADICALISM & DISSENT (3)**American Radicalism and Dissent**

This course will explore the political, cultural and intellectual history of radical social movements in the United States. Topics will include abolitionism, feminism, anarchism, socialism, communism, civil rights, black nationalism, gay rights, anti-war protest, and the 1960s New Left. Course not offered 2004-2005. Instructor(s): *Lichtenstein*

HIST 335 CARIBBEAN HISTORY TO 1838 (3)**Caribbean History to 1838**

Study of Caribbean history from the arrival of the Europeans to the abolition of slavery in the British West Indies in 1838, with emphasis on the social and economic history of the region. Includes the question of why slavery and the plantation system both emerged and fell. Course not offered 2004-2005. Instructor(s): *Cox*

(#) = credit hours per semester

HIST 336 CARIBBEAN HISTORY 1838-PRESENT (3)**Caribbean History 1838 to Present**

Study of the social, economic, and political history of the Caribbean people from the abolition of slavery to the emergence of independent nations in the modern era. Course not offered 2004-2005. Instructor(s): *Cox*

HIST 338 HUMANIST TRADITION & CRITICS (3)**Humanist Tradition and Its Critics**

Exploration of aspects of Western humanist and anti-humanist traditions from the early modern period to the present, with emphasis on how writers within each tradition understood fundamental terms like human nature, self, community, morality, and freedom. Includes literary, theological, and philosophical texts, as well as contemporary critical theory. Course not offered 2004-2005. Instructor(s): *Quillen*

HIST 340 VICTORIAN INTELLECTUALS (3)**Victorian Intellectuals**

Study of the upheaval in late 19th century social thought and culture caused in part by Darwin's theory of evolution, with emphasis on American readings, using English and continental writers for comparison. May include Spencer, Veblen, Henry Adams, William James, Dewey, Matthew Arnold, and Nietzsche. Course not offered 2004-2005. Instructor(s): *Haskell*

HIST 341 PRE-MODERN CHINA (3)**Pre-Modern China**

Survey of Chinese history from antiquity to c.1800, highlighting salient aspects of China's heritage. Instructor(s): *Smith*

HIST 342 MODERN CHINA (3)**Modern China**

Continuation of HIST 341. Includes China's revolutionary transformation in the 19th and 20th centuries, from the Ch'ing dynasty to the People's Republic. May take HIST 341 and 342 separately. Instructor(s): *Smith*

HIST 345 HUMANISM & EXPANSION (3)**Early Modern Europe: Humanism and Expansion**

Exploration of major cultural developments in Western Europe from the rise of Italian humanism in the 14th century to European conquest and expansion in the 16th century. Course not offered 2003-2004. Also offered as MDST 345. Instructor(s): *Quillen*

HIST 347 20TH CENTURY U.S. LABOR HISTORY (3)**U.S. Labor History: 20th Century Representations**

This lecture/discussion course considers the last century of American labor history through a close analysis of journalism, fiction, and film. Topics will include: industrialization, immigration, gender, industrial unionism, race relations, syndicalist, socialist and communist organizing, agrarian labor, and de-industrialization. Reading will be supplemented by required evening film showings. Limited enrollment. Course not offered 2004-2005. Instructor(s): *Lichtenstein*

HIST 348 THE NEW DEAL & W.W. II (3)**U.S. History: The New Deal and W.W. II**

Topics include political economy of the depression and development of a government response; growth of the labor movement; cultural and political ferment of the era; regionalism; and the wartime home experience of women, racial minorities, and the working class. Enrollment limited to 30. Instructor(s): *Lichtenstein*

HIST 349 WOMEN & GENDER 19TH CENTURY EUR (3)**Women and Gender in 19th Century Europe**

Examination of the political and cultural discussions of the "woman question" in 19th century Europe. Includes the role of the public and private legal rights in republicanism and the early feminist movement, gender equality in the context of socialist movements, and challenges to gender identity posed by cultural modernism. Also offered as WGST 420. Course not offered 2004-2005. Instructor(s): *Wildenthal*

HIST 350 AMERICA, 1900-1940 (3)**America, 1900-1940**

Survey of major economic, social, and political developments in the United States from 1900 to 1940. Course not offered 2004-2005. Instructor(s): *Matusow*

HIST 351 AMERICA SINCE 1945 (3)**America Since 1945**

Survey of major economic, social and political developments in the United States since 1945. Limited enrollment. Course not offered 2004-2005 Instructor(s): *Matusow*

(F) = Fall; (S) = Spring

HIST 354 GERMAN HISTORY, 1648–1890 (3)**German History, 1648–1890**

Survey of the “Germanies” from the rise of the absolutist state following the Thirty Years’ War to the unification of Germany in 1871. Includes development of modern bureaucratic and military institutions, changing conceptions of state and society, and the major social and economic changes of the period. Also offered as GERM 344. Course not offered 2004–2005. Instructor(s): *Caldwell*

HIST 355 GERMAN HISTORY, 1890–1945 (3)**From Democracy to Dictatorship: German History, 1890–1945**

Lecture class examines empire, democracy and dictatorship in Germany, 1890–1945. Includes political history, challenges of organized capitalism, the rise and fall of socialism, development of an interventionist state, cultural critique and political culture, the Nazi social revolution, and the Holocaust. Also offered as GERM 345. Course not offered 2004–2005. Instructor(s): *Caldwell*

HIST 357 JEWS & CHRISTIANS-MEDIEVAL EUR (3)**Jews and Christians in Medieval Europe**

Enriched version of HIST 257. May not receive credit for both HIST 257 and 357. Also offered as MDST 357. Instructor(s): *Haverkamp*

HIST 358 EARLY EUR INTELLECTUAL HISTORY (3)**European Intellectual History from Augustine to Descartes**

This course will survey key developments in Western thought (political theory, literature, philosophy, theology, and art) from the consolidation and institutionalization of Christian doctrine in the fourth and fifth centuries through the beginnings of the “Scientific Revolution” in the 17th century. Also offered as MDST 358. Instructor(s): *Quillen*

HIST 360 EMPIRE AND FILM (3)**Empire and Film**

The British Empire will be explored through a wide range of films from Britain, America, India and China. These films offer a storehouse of images, styles and sentiments reflecting in many ways on “the imperial enterprise”. In addition, readings. Prerequisite(s): Some previous work in either history or film recommended. Limited enrollment. Instructor(s): *Wiener*

HIST 361 HISTORY OF BRITAIN, I (3)**Britain from Henry VIII to the Industrial Revolution, 1509–1815**

Examination of the personalities and forces that changed England from a backwater of Europe into, by 1815, the United Kingdom and the British Empire, the leading nation, and empire, in the world. About equal amounts of lecture and discussion. Course not offered 2004–2005. Instructor(s): *Wiener*

HIST 362 HISTORY OF BRITAIN, II (3)**Britain from the Industrial Revolution to Tony Blair, 1815–Present**

Exploration of Britain’s take-off into the Industrial Revolution, the flourishing of the Empire, the adjustment to the end of the Empire, and the diminishment of world political and economic stature from the First World War to Tony Blair’s “New Britain.” Includes the use of novels and films to examine these transformations. Instructor(s): *Wiener*

HIST 363 SEXUALITY—EARLY MODERN EUR (3)**Gender and Society in Early Modern Europe**

Exploration of the relationship between ideas about gender and the social, political, and legal institutions in Europe from c. 1350 to 1800. Includes the structure and role of the family, gender roles in religious institutions, and the regulation of sexuality. Also offered as WGST 338. Course not offered 2004–2005. Instructor(s): *Quillen*

HIST 365 THE WORLD & THE WEST (3)**The World and the West**

Enriched version of HIST 235. Students may not receive credit for both HIST 235 and 365. Course not offered 2004–2005. Instructor(s): *Quillen, Makdisi*

HIST 366 MODERN BRAZIL (3)**Modern Brazil**

Course examines Brazil’s history, from its 1822 peaceful independence to present efforts in creating a democratic society following a military dictatorship. Topics include a legacy as the world’s largest slave-holding society in the 19th century, struggles to conquer its huge territory, and the interaction of those factors in shaping national identity. Instructor(s): *Wolfe*

HIST 368 TRADITIONAL CHINESE CULTURE (3)**Traditional Chinese Culture**

An enriched version of HIST 250. Students may not receive credit for both HIST 250 and 368. Instructor(s): *Smith*

(*) = credit hours per semester

HIST 369 FILM, LIT, & THE JAPANESE PAST (3)**Film, Literature, and the Japanese Past**

Since 1945, authors and film directors in Japan have made sense of the horrors of war, the challenges of rapid economic growth, and the crisis of affluence through artistic reinterpretations of historical themes. Course examines historical allusions and their uses in 20th century Japanese film and literature. Also offered as ASIA 369. Course not offered 2004-2005. Instructor(s): *Thal*

HIST 370 EUROPEAN INTELLECTUAL HISTORY (3)**European Intellectual History: Bacon to Hegel**

Survey of major thinkers and intellectual movements from the scientific revolution to the French Revolution. Includes the use of primary and secondary sources to establish the main contours of philosophical, political, and cultural expression and to relate them to their historical context. Instructor(s): *Zammito*

HIST 371 HISTORY OF MODERN FRANCE (3)**The History of Modern France**

Study of transformations in French society, culture, and politics before, during, and after the French Revolution. Taught in English. Course not offered 2004-2005. Instructor(s): *Cohen*

HIST 374 JEWISH HISTORY, 1500-1948 (3)**Jewish History, 1500-1948**

Enriched version of HIST 274. Students may not receive credit for both HIST 274 and 374. Course not offered 2004-2005. Instructor(s): *Haverkamp*

HIST 375 EUROPEAN ROMANTICISM 1750-1850 (3)**European Romanticism, 1750-1850**

Investigation of the emergence, triumph and defeat of Romanticism as a major cultural force in European history, with emphasis on national and epochal diversity within Romanticism in Britain, Germany, and France. Includes Rousseau, Goethe, Schiller, Schlegel, Schelling, Wordsworth, Coleridge, Byron, Stendhal, Hugo, and Baudelaire, as well as music and art. Course not offered 2004-2005. Instructor(s): *Zammito*

HIST 377 OTTOMAN EMPIRE, 1453-1918 (3)**History of the Ottoman Empire, 1453-1918**

Enriched version of HIST 277. May not receive credit for both HIST 277 and 377. Course not offered 2004-2005. Instructor(s): *Makdisi*

HIST 378 MODERN ARAB HISTORY (3)**The Arab World in the 20th Century, 1918 to Present**

Enriched version of HIST 278. May not receive credit for both HIST 278 and 378. Course not offered 2004-2005. Instructor(s): *Makdisi*

HIST 379 THE CARIBBEAN IN REVOLUTION (3)**The Caribbean in the Age of Revolution, 1770-1820**

An enriched version of HIST 279. Students may not receive credit for both HIST 279 and 379. Instructor(s): *Cox*

HIST 382 CLASSICAL ISLAMIC CULTURES (3)**Classical Islamic Cultures**

An introduction to the cultures and religions of the Islamic world from the 9th through the 14th centuries. Topics include Islamic law and theology, philosophy, ritual, Islamic science and medicine, classical Arabic literature, the impact of Arabo-Islamic culture on Jewish and Christian cultures of the Islamic world. Also offered as MDST 382. Courses not offered 2004-2005. Instructor(s): *Sanders*

HIST 384 THE CRUSADES (3)**The Crusades: Holy War in Medieval Christendom and Islam**

Examination of the Crusades (11th to 15th centuries) from the point of view of both Christian Europe and the Islamic Near East. Includes the political and military history of the Crusades, as well as the social, cultural and religious transformations that caused, and were wrought by, these conflicts. Also offered as MDST 384. Course not offered 2004-2005. Instructor(s): *Sanders*

HIST 386 RECENT U.S. FOREIGN POLICY (3)**Recent U.S. Foreign Policy**

This course will examine American policy during the climactic years of the Cold War. Topics will include detente under Nixon and Carter, confrontation under Reagan, the "new thinking" of Gorbachev, regional conflicts, and the fall of the Soviet Union. Enrollment limited to 30. Instructor(s): *Matusow*

HIST 387 LIFE ON THE NILE (3)**Life on the Nile**

Egyptian society, culture, and religion from the 18th to 20th centuries. Course will use travel accounts, ethnographies, novels, historical chronicles, and movies, to examine the position of Egypt in the Ottoman and British Empires. Focus will be the long-term Egyptian cultural and social structures and their transformation in different political contexts. Instructor(s): *Sanders*

(F) = Fall; (S) = Spring

HIST 388 THE ATLANTIC WORLD (3)**The Atlantic World: Origins to the Age of Revolution**

Enriched version of HIST 188. Students may not receive credit for both HIST 188 and 388. Course not offered 2004-2005. Instructor(s): *Byrd*

HIST 393 WAR—MACHIAVELLI TO NAPOLEON (3)**The Art of War from Machiavelli to Napoleon**

Enriched version of HIST 293. May not receive credit for both HIST 293 and 393. Course not offered 2004-2005. Instructor(s): *Gruber*

HIST 394 WAR IN THE MODERN WORLD (3)**War in the Modern World**

Enriched version of HIST 294. Students may not receive credit for both HIST 294 and 394. Course not offered 2004-2005. Instructor(s): *Gruber*

HIST 395 THE AMERICAN SOUTH (3)**The American South**

An enriched version of HIST 295. May not receive credit for both HIST 295 and 395. Course not offered 2004-2005. Instructor(s): *Boles*

HIST 403 HONORS THESIS (3)**Honors Thesis**

Restricted to students who have been admitted to the honors program; consent of the director of the honors program is required. Students must take both HIST 403 and 404 to gain credit. Instructor(s): *Staff*

HIST 404 HONORS THESIS (3)**Honors Thesis**

Continuation of HIST 403, which is prerequisite for enrollment. Completion of this course is required to obtain credit for HIST 403. Instructor(s): *Staff*

HIST 409 HISTORY OF EAST AFRICA (3)**History of East Africa**

Seminar on East African cultures, societies, economies, and politics from earliest times to the present. Includes the peoples and languages of East Africa; migrations and settlement, state formation; long-distance trade and expansions in scale, imperialisms and colonial conquest; colonial transformations of African societies; nationalism, and independence. Limited enrollment. Instructor(s): *Odbiambo*

HIST 410 KENYA IN MODERN HISTORY (3)**Kenya in Modern History**

Study of Kenya's transformation from tribal societies to modern state. Topics include migrations and settlement; emergence of pre-colonial societies, underlying cultural unities, and pre-capitalist socio-economic formations; British conquest; colonial state and economic changes; traditions of resistance and collaboration; invention of tribes; Mau Mau; de-colonization and constitutional changes; and the post-colonial state. Limited enrollment. Instructor(s): *Odbiambo*

HIST 415 RISE & FALL BRITISH EMPIRE (3)**The Rise and Fall of the British Empire**

Seminar on how the largest empire in world history came into existence, the impact it had on people and states worldwide, and its decline and fall. Course work will consist of reading, viewing, and evaluating films, and preparing and summarizing in class a research paper on a topic of choice. Prerequisite(s): Some background in either British history or one of the areas impacted by the British desirable. Limited enrollment. Instructor(s): *Wiener*

HIST 416 BLACKS IN REAGAN'S AMERICA (3)**Seminar in Contemporary African American History**

A reading- and writing-intensive seminar focusing on selected issues in black culture, politics, and community in the United States since the climax of the Civil Rights movement. Contents vary. Limited enrollment. Course not offered 2004-2005 Instructor(s): *Byrd*

HIST 426 SLAVERY & RACE RELATIONS (3)**Comparative Slavery and Race Relations in the Americas**

Comparative analysis of slavery and race relations in the U.S., the Caribbean, and Latin America, chiefly to the late 19th century. Includes the relative harshness or mildness of the institution of slavery in various systems, opportunities for advancement for former slaves, and the resultant nature of race relations. Limited enrollment. Instructor(s): *Cox*

HIST 427 THE CIVIL RIGHTS MOVEMENT (3)**History of the Civil Rights Movement, 1954 to the Present**

Examination of the modern Civil Rights movement, with emphasis on the goals and strategies of major spokespersons and leaders, as well as the achievements of the campaign. Includes the extent of its success or failure and whether or not an "unfinished" agenda needs to be completed. Limited enrollment. Course not offered 2004-2005. Instructor(s): *Cox*

HIST 428 COMPARATIVE LABOR HISTORY (3)**Comparative Labor History of the Americas**

Seminar on the history of work and politics among free wage laborers in the Americas in the 19th and 20th centuries. Incorporates studies of workers' experiences during the process of industrialization and urbanization; analyses of the creation of unions and progressive political movements; and study of class, gender, and race. Limited enrollment. Course not offered 2004-2005. Instructor(s): *Wolfe*

HIST 429 TECHNOLOGY & MODERNITY (3)**Technology and Modernity**

Seminar examines both modernity and technology in a variety of settings. Topics include the role of technology in European expansionism, the advent of the railroad, new forms of telecommunications, air travel and warfare, the rise of the automobile, space exploration, and the ongoing development of computers. Limited enrollment. Instructor(s): *Wolfe*

HIST 430 WORLD HISTORY THROUGH FOOD (3)**World History Through Food**

Food is a great constant in human history, but its materials, methods of preparation, and ingredients are not. This seminar covers the basics of cooking from the Bronze Age to the present emphasizing the reception and transmission of ingredients, and the labor of preparation. Limited enrollment. Instructor(s): *Seed*

HIST 431 POLITICS & CULTURE WEIMAR GERMANY (3)**Politics and Culture in Weimar Germany**

Born in political and social crisis, the Weimar Republic exemplifies the possibilities and limits of modern democracy. This seminar focuses on original documents of political thought, literature, the visual arts, society, and law to explore the political culture of Germany's first, ill-fated democracy. Also offered as GERM 331. Enrollment limited to 15. Instructor(s): *Caldwell, Emden*

HIST 432 ISLAM IN SOUTH ASIA (3)**Islam in South Asia**

Seminar on Islamic history, politics, and culture in the South Asian subcontinent. Topics will include emergence of Indian Muslim society; Muslim responses to colonialism and the movement for Pakistan; and the role of Islam in politics in contemporary India, Pakistan, and Bangladesh. Requires no prior knowledge of Islam or South Asia. Also offered as ASIA 432 and WGST 432 Limited Enrollment. Course not offered 2004-2005. Instructor(s): *Shebabuddin*

HIST 433 THE ARAB-ISRAELI CONFLICT (3)**The Arab-Israeli Conflict**

Seminar traces the history and politics of the Arab-Israeli conflict. Course seeks to understand how and at what costs Israeli and Palestinian nationalisms have been constructed in both Palestinian and Israeli understandings of the past and present using books, documentaries, and films. Limited enrollment. Course not offered 2004-2005. Instructor(s): *Makdisi*

HIST 434 ISLAM & THE WEST (3)**Islam and the West**

Seminar explores issues of contact and exploration between Western and Islamic worlds, from the Crusades to the modern era. Investigations will explore how identities are formed and reshaped through interaction with other cultures and how traditions are "invented" by relationships between civilization and despotism, freedom and tyranny, religious tolerance and holy war. Limited enrollment Course not offered 2004-2005. Instructor(s): *Makdisi*

HIST 435 MIDEAST COLONIAL & NATIONALISM (3)**Colonialism and Nationalism in the Middle East**

This seminar focuses on colonialism and nationalism in the modern Middle East. Beginning with Napoleon's invasion of Egypt in 1798, the seminar delves into specific case studies of European and Middle Eastern encounters and their representations that span both the 19th and 20th centuries. Limited enrollment. Course not offered 2004-2005. Instructor(s): *Makdisi*

HIST 436 AMERICA & THE MIDDLE EAST (3)**America and the Middle East**

Exploration of American political, cultural, and religious involvement in the Middle East. Contents vary. Limited enrollment. Course not offered 2004-2005. Instructor(s): *Makdisi*

(F) = Fall; (S) = Spring

HIST 437 CHRISTIANS & JEWS-MEDIEVAL ISLAM (3)**Christians and Jews in the Medieval Islamic World**

Examination of Christian and Jewish communities in the Islamic world from the rise of Islam to the Ottoman Empire. Topics include the "dhimmis" (protected peoples); social and economic life; communal organization; and interplay of religious laws and political authority. Discussions focus on modern historiography and Muslim communities under Christian rule. Also offered as MDST 385. Enrollment limited to 15. Course not offered 2004-2005. Instructor(s): *Sanders*

HIST 438 MEDIEVAL ISLAM WOMEN&GENDER (3)**Women and Gender in the Medieval Islamic Societies**

Course examines the legal position and social realities of men and women in the Islamic world, with emphasis on how boundaries of gender have traditionally been drawn. Includes family and sexual ethics, the harem, polygyny, divorce, and eunuchs (who played an important role in the military and certain religious institutions). Also offered as MDST 438 and WGST 455. Limited enrollment. Course not offered 2004-2005. Instructor(s): *Sanders*

HIST 439 COMPARATIVE SLAVERY (3)**Comparative Slavery from Antiquity to the Present: Africa, Asia and Europe**

Course introduces the debates on the history of slavery in human society. Examines case studies in Africa, Asia and Europe with comparative analyses of topics; slavery and the state; slavery and gender; slave trades; and slave resistance. Limited enrollment. Course not offered 2004-2005. Instructor(s): *Ward*

HIST 440 THE FUTURE OF THE UNIVERSITY (3)**The Future of the University**

This research seminar will examine and place in historical context current controversies over the future of the modern American research university. Students will prepare papers based on the archival records of Rice University and secondary literature on other universities. Enrollment limited to 15. Course not offered 2004-2005. Instructor(s): *Haskell*

HIST 442 RENAISSANCE EUROPEAN HISTORY (3)**The Renaissance in European History**

This seminar examines major approaches to and interpretations of the European Renaissance (the period from about 1350-1600) and then analyzes the place that this era came to occupy in our understanding of "western civilization" and of European history generally. Also offered as HIST 542. Limited enrollment. Course not offered 2004-2005. Instructor(s): *Quillen*

HIST 444 MEMORY & COMMEMORATION (3)**Memory and Commemoration in the Middle Ages**

Memory and commemoration are the intentions, attitudes, acts, and media that should prevent oblivion of individuals and communities (beyond death). Possessing universal dimensions which date from antiquity, in the present they are often driven into individual remembrance, the institutional realm of politics, the secluded world of museums. Also offered MDST 444. Course not offered 2004-2005. Instructor(s): *Haverkamp*

HIST 445 JEWS IN IMAGE & FILM (3)**Jews in Image and Film**

This seminar course will trace the perceptions of Jews and of certain themes in Jewish history from the Middle Ages to modern times. Focus will be placed on their representation in medieval and early modern images of Christian and Jewish art and on modern film. Limited enrollment. Instructor(s): *Haverkamp*

HIST 446 COMMUNITIES IN MIDDLE AGES (3)**Jewish and Christian Communities in the Middle Ages**

Seminar discusses characteristics of Jewish communal organizations, parallel features and connections with Christian organizations, and their relationships to the rising modern states in medieval Christian Europe which were different from patterns of self-government in Babylon, Israel and Islamic countries. Also offered as MDST 446. Limited enrollment. Instructor(s): *Haverkamp*

HIST 447 THE AGE OF THE CRUSADES (3)**The Age of the Crusades**

Seminar will discuss characteristics of the Crusades against Muslim, Jews, pagans, Mongols, heretics, schismatics, and political enemies and explore to what extent the concepts of "holy war" and new expressions of religious beliefs impacted fundamentalism creating new possibilities for globalization in medieval Europe. Discussions will include primary and secondary sources. Also offered as MDST 447. Limited enrollment. Course not offered 2004-2005. Instructor(s): *Haverkamp*

HIST 448 CREATING MODERN JAPAN (3)**Creating Modern Japan: The Meiji Restoration**

What does it mean to become modern? This seminar examines the revolutionary changes in thought, language, society, politics, and economics that took place in Japan in the late 19th century - transformations that enabled the rapid development of Japan into a world industrial and military power. Limited enrollment. Instructor(s): *Thal*

(*) = credit hours per semester

HIST 451 PHILOSOPHIES & THEOLOGIES (3)**Philosophies and Theologies of History**

Modern thought on the meaning, direction of history; roots in eschatology, Augustine; flowering in progress, historicism: Hegel, Ranke, Burckhardt, Nietzsche, Troeltsch, Spengler, Heidegger, Toynbee; cultural echo (de Chirico, Proust, Mann, Robbe-Grillet, Bunuel, Bergman, Fellini). Also offered as RELI 451. Course not offered 2004-2005. Instructor(s): *Stroup*

HIST 452 THE U.S. & SOUTH AFRICA (3)**Comparative History: The U.S. and South Africa**

Seminar compares and contrasts the history of two modern societies based on the foundation of racial division and exploitation. Examination will include historical evolution of white racism in both nations; comparing systems of segregation and apartheid; and the history of the civil rights and anti-apartheid movements. Limited enrollment. Course not offered 2004-2005. Instructor(s): *Lichtenstein*

HIST 455 HISTORY OF HUMAN RIGHTS (3)**History of Human Rights**

Seminar will explore the history of human rights through disciplines of anthropology and legal philosophy as well as historical case studies of individual states and human rights organizations. Students will undertake independent research on an issue, location, and period of their choosing. Limited enrollment. Course not offered 2004-2005. Instructor(s): *Wildenthal*

HIST 459 TOPICS MODERN GERMAN HISTORY (3)**Topics in Modern German History**

Seminar on selected topics in the history of Germany. Contents vary. Also offered as GERM 332. Limited enrollment. Course not offered 2004-2005. Instructor(s): *Caldwell*

HIST 460 SEMINAR IN ANCIENT HISTORY (3)**Advanced Seminar in Ancient History**

Seminar on selected topics in ancient history. Contents vary. Also offered as MDST 460 Limited enrollment. Prerequisite(s): HIST 201 and HIST 307 or permission of instructor. Course not offered 2004-2005. Instructor(s): *Maas*

HIST 462 NEWTON & THE 18TH CENTURY (3)**Newton and the 18th Century**

Newton was the indispensable starting point for 18th century thought from the physical sciences to medicine and the so-called "human sciences." Seminar will consider Newton himself and the complex legacy of his thought in 18th century thinkers including Leibniz, Boerhaave, Voltaire, Hume, Haller, Kant, Priestley, Blake, and Goethe. Limited enrollment. Course not offered 2004-2005. Instructor(s): *Zammito*

HIST 464 TOPICS U.S. HISTORY, 1968-1988 (3)**Seminar Topics in U.S. History, 1968-1988**

Seminar requiring three short research papers. Limited enrollment. Prerequisite(s): Permission of instructor required. Instructor(s): *Matusow*

HIST 465 COLONIAL AMERICA (3)**Colonial America**

Study of the growth of society, thought, and politics in the English colonies of North America. Limited enrollment. Course not offered 2004-2005. Instructor(s): *Gruber*

HIST 466 AMERICAN REVOLUTION, 1754-1789 (3)**The American Revolution, 1754-1789**

Study of the origins and implications of the American Revolution, with emphasis on constitutional, social, and political developments. Limited enrollment. Instructor(s): *Staff*

HIST 468 WOMEN & THE WELFARE STATE (3)**Women and the Welfare State: Sexual Politics and American Poverty**

This seminar in the history of women and welfare focuses on women's contributions to the growth of the welfare state and investigates how welfare has been shaped by understandings of gender, race, and class. Compares American programs to similar programs developed in other countries. Also offered as WGST 468. Limited enrollment. Instructor(s): *Sneider*

HIST 469 INTER-AMERICAN RELATIONS (3)**Inter-American Relations**

Seminar explores the long and contentious relationships between the U.S. and Latin American nations. Focus will be on events from the late 19th and 20th centuries as seen through the lenses of political, economic, social, and cultural history. Limited enrollment. Course not offered 2004-2005. Instructor(s): *Wolfe*

(F) = Fall; (S) = Spring

HIST 471 TOPICS MODERN FRENCH HISTORY (3)**Seminar Topics in Modern French History**

Research seminar on selected topics in modern French history. Contents vary. Course not offered 2004–2005.
Instructor(s): *Coben*

HIST 472 JAPANESE ANIMATION (3)**Japanese Animation: Narrative, History, and Society**

Seminar explores the social, historical, and aesthetic significance of Japanese animation. Topics include gender and sexuality, ecological consciousness and religious imagination, folklore and history, viewership and fandom, centrality of the fantastic and grotesque, visions of a media- and technology- saturated society, and prevalence of apocalyptic motifs and conspiracy theory. Also offered as ASIA 472 and HART 472. Limited enrollment. Course not offered 2004–2005. Instructor(s): *Thal, Nakatani*

HIST 473 TOPICS EUR INTELLECTUAL HISTRY (3)**Seminar Topics in European Intellectual History**

Research seminar on selected topics in modern European intellectual history. Topics vary. Limited Enrollment. Course not offered 2004–2005. Instructor(s): *Zammito*

HIST 488 TOPICS IN MEDIEVAL HISTORY (3)**Topics in Medieval History**

Research seminar on selected issues, subject or themes in medieval history. Also offered as MDST 488. Limited enrollment. Course not offered 2004–2005. Instructor(s): *Staff*

HIST 489 MIGRATIONS & DIASPORAS (3)**Migrations and Diasporas in the Indian Ocean World**

The Indian Ocean World presents an enormously varied arena of cultural exchange and interaction spanning coastal regions of Africa, the Middle East, South and Southeast Asia and Australia. Seminar introduces the region by examining societies and empires shaped by voyages of exploration, religious pilgrimages, trading diasporas and forced migration. Also offered as ASIA 489. Limited enrollment. Course not offered 2004–2005. Instructor(s): *Ward*

HIST 490 THE MEXICAN REVOLUTION (3)**The Mexican Revolution: Interpretations**

Seminar will examine the Mexican Revolution from a wide variety of vantage points to address key questions regarding social upheaval, the struggle for popular democracy and state making. All assigned readings available in English. Limited enrollment. Course not offered 2004–2005. Instructor(s): *Wolfe*

HIST 496 THE HAITIAN REVOLUTION (3)**A Turbulent Time: The World of the Haitian Revolution**

An examination of the impact of the powerful forces unleashed by the Haitian Revolution on societies in the Caribbean, the U.S., and Latin America in the late 18th and early 19th centuries. Limited enrollment. Course not offered 2004–2005. Instructor(s): *Cox*

HIST 498 PROJECTS AFRO-AMERICAN HISTORY (3)**Projects in Afro-American History**

Seminar in which participants propose and execute a collaborative project in Afro-American history. Work will culminate a substantive piece of public history (a group publication, exhibit, broadcast, or electronic document, for example). For further information, or to suggest a possible project, contact the instructor. Limited enrollment. Course not offered 2004–2005. Instructor(s): *Byrd*

HIST 501 MASTER'S RESEARCH (4)**Master's Research**

Research for master's thesis. Must take both HIST 501 and 502 to receive credit. Instructor(s): *Staff*

HIST 502 MASTER'S RESEARCH (HOURS VARIABLE)**Master's Research**

Continuation of HIST 501. Must complete both HIST 501 and 502 to receive credit. Instructor(s): *Staff*

HIST 511 DIR RDG AMERICAN HISTORY, I (4)**Directed Readings in American History, I**

Instructor(s): *Staff*

HIST 512 DIR RDG AMERICAN HISTORY, I (4)**Directed Readings in American History, I**

Instructor(s): *Staff*

(#) = credit hours per semester

HIST 513 DIR RDG AMERICAN HISTORY, II (4)

Directed Readings in American History, II

Instructor(s): *Staff*

HIST 514 DIR RDG AMERICAN HISTORY, II (4)

Directed Readings in American History, II

Instructor(s): *Staff*

HIST 515 DIR RDG MILITARY HISTORY, I (4)

Directed Readings in Military History, I

Instructor(s): *Staff*

HIST 516 DIR RDG MILITARY HISTORY, II (4)

Directed Readings in Military History, II

Instructor(s): *Staff*

HIST 517 DIR RDG SCIENCE & TECHNOLOGY (4)

Directed Readings Science and Technology

Instructor(s): *Staff*

HIST 518 DIR RDG SCIENCE & TECHNOLOGY (4)

Directed Readings Science and Technology

Instructor(s): *Staff*

HIST 519 DIR RDG AFR-AMERICAN HIST, I (4)

Directed Readings in African-American History, I

Instructor(s): *Staff*

HIST 520 DIR RDG AFR-AMERICAN HIST, II (4)

Directed Readings in African-American History, II

Instructor(s): *Staff*

HIST 521 DIR RDG MEDIEVAL HISTORY (4)

Directed Readings in Medieval History

Instructor(s): *Staff*

HIST 522 DIR RDG MEDIEVAL HISTORY (4)

Directed Readings in Medieval History

Instructor(s): *Staff*

HIST 523 DIR RDG WOMEN & GENDER HISTORY (4)

Directed Readings in Women's and Gender History

Also offered as WGST 523. Instructor(s): *Staff*

HIST 525 DIR RDG AFRICAN HISTORY (4)

Directed Readings in African History

Instructor(s): *Staff*

HIST 526 DIR RDG AFRICAN HISTORY (4)

Directed Readings in African History

Instructor(s): *Staff*

HIST 527 DIR RDG NON-WESTERN HISTORY, I (4)

Directed Readings in Non-Western History, I

Instructor(s): *Staff*

HIST 528 DIR RDG NON-WESTERN HISTORY, II (4)

Directed Readings in Non-Western History, II

Instructor(s): *Staff*

HIST 529 DIR RDG MODERN EUR HISTORY, I (4)

Directed Readings in Modern European History, I

Instructor(s): *Staff*

HIST 530 DIR RDG MODERN EUR HISTORY, I (4)

Directed Readings in Modern European History, I

Instructor(s): *Staff*

(F) = Fall; (S) = Spring

HIST 531 DIR RDG MODERN EUR HISTORY, II (4)**Directed Readings in Modern European History, II**Instructor(s): *Staff***HIST 532 DIR RDG MODERN EUR HISTORY, II (4)****Directed Readings in Modern European History, II**Instructor(s): *Staff***HIST 534 CIVILIZING MISSIONS (4)****Civilizing Missions**

The development of "civilizing missions" legitimized territorial and spiritual conquest and validated the suppression of subject customs, cultures, and religions. Course will explore the idea which became an integral part of imperial, religious, and national ideologies. Readings include (in translation) modern historical, geographical, legal, ethnographic, religious, and literary texts. Course not offered 2004-2005. Instructor(s): *Makdisi*

HIST 537 COMPARATIVE EMPIRES (4)**Comparative Empires**

This graduate seminar examines Roman and Ottoman notions of empire, European and Eastern historiography of empire in the 18-19th centuries, and imperial practice as it was conceived and carried out in both the Ottoman and British contexts (focusing primarily, but not exclusively, on Egypt and India). Instructor(s): *Sanders*

HIST 541 HISTORY OF THE MODERN SOUTH (4)**History of the Modern South**

Seminar designed to introduce graduate students to historiographic background, sources, and methods for conducting primary research in post-1865 southern U.S. history. Topics will include, but not be limited to: labor, politics, and civil rights. Research paper required. Course not offered 2004-2005. Instructor(s): *Lichtenstein*

HIST 542 RENAISSANCE EUROPEAN HISTORY (4)**The Renaissance in European History**

Graduate version of HIST 442. Students may not receive credit for both HIST 442 and 542. Course not offered 2004-2005. Instructor(s): *Quillen*

HIST 543 TOPICS MODERN EUROPEAN HISTORY (4)**Topics in Modern European History**

Graduate research seminar on selected themes in modern European history. Topics vary. Course not offered 2004-2005. Instructor(s): *Caldwell*

HIST 545 WOMEN & GENDER: EUR & BEYOND (4)**Women and Gender: Europe and Beyond**

Graduate seminar exploring recent work in key areas of research on women and gender: nationalism; the modern welfare state; and the challenges which histories of working-class women have posed to definitions of politics, feminism, class, and family. Settings will include colonial and national Britain, India, Africa, Netherlands, Indonesia, France, and Germany. Also offered as WGST 545. Instructor(s): *Wildenthal*

HIST 546 WARFARE SINCE 1400 (4)**Warfare Since 1400**

Reading seminar in the history and theory of warfare since 1400. Topics on raising and equipping forces, motivating men to fight, defining war and limiting the effects of violence, creating professional soldiers and controlling military power, engaging the people in wars toward the absolute, and limited wars of ideology and terror. Course not offered 2004-2005. Instructor(s): *Gruber*

HIST 548 MARX (4)**Marx**

Introduction to key concepts of Marxist theory: alienation, production, reification, and revolution. Traces dissemination into literary theory, cultural studies, and social sciences. Original sources and secondary readings identify impact and continuing charge provided by Marxist theory for aporias of representation, theories of subjectivity, new political movements, trans-nationality, and post-industrial capitalism. Course not offered 2004-2005. Instructor(s): *Caldwell*

HIST 550 MAIN ISSUES: CARIBBEAN HISTORY (4)**Main Issues in Caribbean History**

Examination of the major local and international forces and ideas that have shaped the course of the history of the Caribbean. Instructor(s): *Cox*

HIST 551 U.S. WOMEN'S HISTORY (4)**U.S. Women's History**

Graduate reading seminar. Topics vary. Also offered as WGST 551. Instructor(s): *Sneider*

(#) = credit hours per semester

HIST 555 SOURCES OF MEDIEVAL HISTORY (4)**Guide to the Sources of Medieval History**

This graduate seminar will introduce participants to the typology of the sources of medieval history and to the auxiliary sciences of history. Course not offered 2004-2005. Instructor(s): *Haverkamp*

HIST 558 SOC. & POL. THOUGHT POSTWAR GERM (4)**Social and Political Thought in Postwar Germany**

Seminar investigates the reconstruction of German social and political thinking between 1945 and 1989. Topics include the "end of history" in functionalist sociology; Bloch's reformulation of Marxism; literary representation of the Nazi past; the state socialist present; reconsiderations of the public sphere; Wolf's feminist critique; and Luhmann's systems theory. Course not offered in 2004-2005. Instructor(s): *Caldwell*

HIST 559 MIGRATION & DISPLACEMENT (4)**Migration and Displacement in Modern European History**

The course investigates the historiography of migration in European history, from the point of view of labor immigration, forced displacement and political exile. We will explore how nation-states have invited, categorized, regulated and repelled various types of European migrants since the end of the 19th century. Instructor(s): *Cohen*

HIST 561 TOPICS EUR INTELLECTUAL HISTORY (4)**Graduate Topics in European Intellectual History**

Graduate research seminar on selected themes in European intellectual history. Contents vary. Course not offered 2004-2005. Instructor(s): *Zammito*

HIST 564 EARLY AMERICA I, 1607-1800 (4)**Early America I, 1607-1800**

Study of major works on the English colonies of North America, as well as topics of particular interest to individual students from 1607 - 1800. Course not offered 2004-2005. Instructor(s): *Gruber*

HIST 565 EARLY AMERICA II, 1607-1800 (4)**Early America II, 1607-1800**

Continuation of HIST 564. Course not offered 2004-2005. Instructor(s): *Gruber*

HIST 566 WAR AND REVOLUTION (4)**War and Revolution**

The emphasis in this graduate seminar will be on the Anglo-American world of the 17th and 18th centuries, but students may choose topics that go beyond the immediate focus of the course. Course not offered 2004-2005. Instructor(s): *Gruber*

HIST 567 20TH CENTURY U.S. HISTORY (4)**Graduate Reading Seminar in 20th Century U.S. History**

Readings seminar for graduate students on 20th century United States history. Topics vary. Instructor(s): *Matusow*

HIST 568 POST-1945 U.S. HISTORY (4)**Graduate Reading Seminar in Post-1945 U.S. History**

Readings seminar for graduate students on post-1945 United States history. Topics vary. Instructor(s): *Matusow*

HIST 571 TOPICS MODERN FRENCH HISTORY (4)**Topics in Modern French History**

Readings seminar for graduate students in modern French history. Topics vary. Course not offered 2004-2005. Instructor(s): *Cohen*

HIST 572 MODERNITY & RELIGION (4)**Modernity and Religion**

Considered antithetical to such hallmarks of European and American modernity as science, capitalism, and church-state separation, religion has nevertheless occupied a vibrant place in modern intellectual, social and political history. Seminar analyzes the role of religion in the 20th century through case studies from around the world. Instructor(s): *Thal*

HIST 575 INTRO DOCTORAL STUDIES (4)**Introduction to Doctoral Studies**

Introduction to a range of methodological and theoretical approaches to historical research, as well as to important current debates about the nature of historical investigation and interpretation. Instructor(s): *Staff*

HIST 576 RESEARCH U.S. WOMEN'S HISTORY (4)**Research in U.S. Women's History**

Graduate research seminar. Topics vary. Also offered as WGST 576. Course not offered 2004-2005. Instructor(s): *Sneider*

(F) = Fall; (S) = Spring

HIST 577 PEDAGOGY SEMINAR (2)**Pedagogy Seminar**

For ABD students who intend to teach. Prerequisite(s): ABD graduate status. Instructor(s): *Lichtenstein*

HIST 578 TOPICS IN SOUTHERN HISTORY (4)**Graduate Topics in Southern History**

This graduate reading seminar will entail in-depth examination of the historiography of particular issues in the history of the American South. Topics will vary. Instructor(s): *Lichtenstein*

HIST 581 BRITISH & IMPERIAL HISTORY, I (4)**British and Imperial History, I**

Reading seminar in British and Imperial History. Open to all graduate students. Required for graduate students in British history. Instructor(s): *Wiener*

HIST 582 BRITISH & IMPERIAL HISTORY, II (4)**British and Imperial History, II**

Continuation of HIST 581. Course not offered 2004-2005 Instructor(s): *Wiener*

HIST 583 SOUTHERN HISTORY (4)**Southern History**

Graduate seminar on religion and slavery in the Old South. Instructor(s): *Boles*

HIST 587 U.S. INTELL./CULTURAL HISTORY (4)**U.S. Intellectual/Cultural History**

Intensive examination of the literature of intellectual and cultural history, with emphasis on 19th century America. Course not offered 2004-2005. Instructor(s): *Haskell*

HIST 590 INTRODUCTION TO WORLD HISTORY (4)**Introduction to World History**

Graduate reading seminar in world history. Instructor(s): *Ward*

HIST 591 GRADUATE READING (1)**Graduate Reading**

Graduate reading in conjunction with another course. Instructor(s): *Staff*

HIST 592 GRADUATE READING (1)**Graduate Reading**

Graduate reading in conjunction with another course. Instructor(s): *Staff*

HIST 593 GRADUATE READING (1)**Graduate Reading**

Graduate reading in conjunction with another course. Instructor(s): *Staff*

HIST 595 THE AMERICAN SOUTH (4)**The American South**

Graduate reading seminar on major scholarly literature of southern history. Includes readings, discussions, and a major paper on historiographical topic decided in consultation with the instructor. Course not offered 2004-2005. Instructor(s): *Boles*

HIST 599 ADVANCED MUSEUM STUDIES (4)**Advanced Museum Studies**

Course not offered 2004-2005. Instructor(s): *Staff*

HIST 800 PHD RESEARCH (HOURS VARIABLE)**PhD Research**

Research for doctoral dissertation. Instructor(s): *Staff*

HONS (HONORS PROGRAM)**No College Designated/Rice Undergrad Scholar Program****HONS 470 UNDERGRAD SCHOLARS PROGRAM (3)****Rice Undergraduate Scholars Program**

The RUSP program is designed for students in any department who may be considering graduate school and/or careers in research or scholarship. The course centers on individual research projects that are supervised by a faculty member, who is identified by the student. This faculty member meets regularly with the student and serves as a mentor. Modest funds are available to support costs of the research projects. Weekly class meetings feature presentations on topics related to research and scholarship. In addition, each student gives an oral presentation on his/her project's discipline. Enrollment by permission of course faculty, based on applications submitted in the previous Spring term.

(#) = credit hours per semester

HONS 471 UNDERGRAD SCHOLARS PROGRAM (HOURS VARIABLE)**Rice Undergraduate Scholars Program (Rusp)**

Continuation of HONS 470. Credit variable (generally 3-6 hours, depending on the scope of the research project). Participants continue the research projects and interactions with faculty mentors. Weekly class meetings again feature presentations and discussion of research-related topics. At the end of the term, each student gives an oral presentation and submits a final paper in the style of a journal article in his/her research area. Enrollment by permission of course faculty.

HUMA (HUMANITIES)**School of Humanities/Humanities Division****HUMA 101 ANCIENT GREECE TO MED ISLAM (3)****From Ancient Greece to Medieval Islam: Introduction to Western Literature, History, and Philosophy**

Study of the foundational intellectual and artistic texts of the western tradition from Ancient Greece to Medieval Islam. Consideration of texts and images over time and in their historical development as we reflect on who we are and how we got here. Readings from Homer, Plato, the Hebrew Bible, the New Testament, Thucydides, Vergil, Augustine, and the Qu'ran.

HUMA 102 RENAISSANCE TO EINSTEIN (3)**From Renaissance to Einstein: Introduction to Western Literature, History, and Philosophy**

Study of the foundational intellectual and artistic texts of the Western tradition from the Renaissance to Einstein. Consideration of texts and images over time and in their historical development as we reflect on who are and how we got here. Readings from Machiavelli, Shakespere, Kant, Flaubert, Nietzsche, Freud, Bauvoir, Einstein, Levi, Kuhn, Borges, and King, and images from such artists as Michelangelo, Goya, and Picasso.

HUMA 107 BIBLE IN WESTERN TRADITION (3)**Bible in Western Tradition**

Explores multiple roles the Bible has played in Western culture. Emphasis will be on the Bible as catalyst in media history, as generator of the artistic imagination, and as catalyst of ideas, and as shaper of religious and political history. Also offered as RELI 200. Course not offered 2004-2005.

HUMA 108 MEDIEVAL AND RENAISSANCE (3)**Art in Context: Late Medieval and Renaissance Culture**

This course will be concerned with Art, Architecture, and History of the late middle-ages and Renaissance. We will employ historical texts, literature, and illustrations of works of art, showing how historical documents and sources can illuminate the culture context of art and architecture. Also offered as HART 240 and MDST 108.

HUMA 109 GREEK CIVILIZATION (3)**Greek Civilization: From Homer to Alexander the Great**

Overview of the literary, artistic, and intellectual achievements of classical Greek civilization from Homer and the Bronze Age through the golden age of classical Athens to the spread of Greek culture in the Hellenistic world. Includes historical background and readings in primary sources. All readings in English. Also offered as CLAS 207 and HIST 207. Enrollment limited. Instructor(s): *Yunis*

HUMA 110 LITERATURE AND DEMOCRACY (3)**Literature and Democracy**

Course examines how writers respond to the developments and problems of democratic societies. Topics include: civil disobedience and just dissent; the civil war and the extension of the franchise; cruel and unusual punishment exercised by governments; and the relationship between privacy and individuality. Requirements: two essays and one class presentation. Also offered as FSEM 110. Enrollment limited. Instructor(s): *Wibl*

HUMA 113 GOD, TIME, AND HISTORY (3)**God, Time, and History**

How is the passage of time given meaning, and what role--if any--is assigned to divinity in shaping the direction of events? Course explores various forms of recording and interpreting events, drawing from ancient Mesopotamia, Israel, and the Greco-Roman world. Also offered as RELI 123 and HIST 113. Not offered 2004-2005.

HUMA 115 PHILOSOPHERS LOOK AT RELIGION (3)**Philosophers Look at Religion**

Inquiry into the ways which selected Western and Asian philosophers have interpreted God, reality, the moral life and religious experience. Plato, Augustine, Hume and Kant will be compared with thinkers of the Vedic, Jain, Saukhya, and Buddhist traditions Also offered as RELI 293. Course not offered 2004-2005.

(F) = Fall; (S) = Spring

HUMA 201 PUBLIC SPEAKING (3)**Public Speaking**

An introduction to the process of public speaking through the presentation of four or more in-class speeches. Enrollment limited to 16.

HUMA 202 RHETORICAL CRITICISM (3)**Rhetorical Criticism**

This course will emphasize study of historical and contemporary speech texts and other forms of public communication. Students study and apply traditional methods of rhetorical criticism in order to understand the construction of public communication. Enrollment limited. Instructor(s): *Grace*

HUMA 210 FORENSICS PRACTICUM (1)**Forensics Practicum**

This course will focus on junior varsity intercollegiate speech and debate competition. Students will be required to prepare speeches and debate material for local, regional and possibly national competitions. Participation in intercollegiate competition is mandatory. May be repeated a maximum of 3 times. Prerequisite(s): Permission of instructor.

HUMA 212 CAREER AND LIFE OPTIONS (1)**Career and Life Options**

This class is intended for freshmen and sophomores who are exploring careers and academic majors (juniors and seniors are also welcome to enroll). In the class students will learn about career options that match their interests, personality, and values; become more familiar with the world of work and various career options; understand the connections between careers and major choice; learn about services that will enhance their marketability and academic experiences (internships, study abroad programs, scholarships/grants); and develop an action plan to reach their goals. This class is ideally suited for students who have no idea what they want to do after they graduate.

HUMA 235 THE WORLD AND THE WEST (3)**The World and the West**

Introduction to the last 500 years of world history, focusing on those processes that define the modern period. Topics including industrialization, democratization, colonialism, and the emergence of new forms of cultural production with exploration of how and why such processes have come to divide the modern world into a west and non-west. Also offered as HIST 235. Course not offered 2004-2005. Instructor(s): *Quillen*

HUMA 295 CURR ISSUES IN THE WORKPLACE (3)**Current Issues in the Workplace**

This class is the companion course for the Joint Venture Liberal Arts Internship Program. It is intended to provide liberal arts majors an overview to the various career options available to them and introduce issues that are shaping the world of work. Each week, guest speakers will discuss different career alternatives, including banking, law, writing and journalism, non-profit management, and education. Additionally, students read current business articles to examine trends that are redefining how work is performed. All students enrolled in HUMA 295 must complete an approved internship. For more information, read about the Joint Venture Liberal Arts Internship Program. This class is taught during both the fall and spring semester; Joint Venture Internships are available during fall, spring and summer.

HUMA 302 THEORIES OF RHETORICAL COMM (3)**Theories of Rhetorical Communication**

This course will survey major theorists of speech and public communication ranging from classical to contemporary thinkers. Emphasis will be on understanding speech and public communication from consumer and scholarly perspectives. Limited enrollment. Instructor(s): *Worth*

HUMA 305 ADVANCED PUBLIC SPEAKING (3)**Advanced Public Speaking**

Designed for students with at least two prior years of instruction or public speaking experience. Will address the ancient origins of speech theory and will require students to apply contemporary speech theory in the presentation of four in-class speeches. Prerequisite(s): Permission of the instructor.

HUMA 308 BUS & PROFESSIONAL SPEAKING (3)**Business and Professional Speaking**

Practical application of communication theory with emphasis on oral presentations, interviewing and small group dynamics.

HUMA 309 ARGUMENTATION & DEBATE (3)**Argumentation and Debate**

Designed to help students develop their research and analytical abilities through the research, analysis and presentation of arguments on questions of fact, value and policy. Debate assignments will explore current issues of the day.

(#) = credit hours per semester

HUMA 310 ADVANCED FORENSICS PRACTICUM (1)**Advanced Forensics Practicum**

This course will focus on varsity intercollegiate speech and debate competition. Students will be required to prepare speeches and debate material for local, regional, and possibly national competitions. Participation in intercollegiate competition is mandatory. May be repeated a maximum of 3 times. Prerequisite(s): Permission of instructor

HUMA 311 LEADERSHIP COMMUNICATION (3)**Leadership Communication**

This course will examine the relationship between leadership and communication within organization. Enrollment limited to 20.

HUMA 321 EUROPEAN WOMEN FILMMAKERS (3)**European Women Filmmakers**

Course will concentrate on films by European women directors, taking into account aesthetic particularities, gender commitment, and post feminist attempts. Importance will also be given to the contexts and conditions of women's film production. All films are subtitled in English. Taught in English with possible FLAC section. Also offered as GERM 321, WGST 358, HART 385. Instructor(s): *Eifler*

HUMA 322 MARX, FREUD, EINSTEIN, FOREBEARS (3)**Marx, Freud, Einstein, Forebearers of Modernity**

These three thinkers have influenced the intellectual, historical, social, and cultural development not only of Germany, but of the entire world. Course examines their works in the context of their own time as well as their continued importance in the present. Works by Brecht, Christa Wolf, Schnitzler, Kafka will also be introduced. Taught in English with a possible FLAC section. Also offered as GERM 322. Course not offered 2004-2005. Instructor(s): *Weissenberger*

HUMA 324 BERLIN, RESIDENCE, METROPOLIS (3)**Berlin, Residence, Metropolis, Capital**

An introduction to German history, politics, and culture as mirrored in the history of the old and new German capital. Emerging from the ruins of WW II Berlin became both the capital of Socialism and the display window of the Free World. After the fall of the wall, Berlin is still looking for its role in the center of a reshaped Europe. Readings and discussions encompass fine arts and literature from the 18th century to the present, including film. Taught in English with possible FLAC section. Also offered as GERM 324. Instructor(s): *Steiner*

HUMA 325 GERMAN NOBEL PRIZE LAUREATES (3)**German Nobel Prize Laureates**

The course will introduce biography of Alfred Nobel and the reasons for establishing his famous Nobel Prize. Most famous among German recipients were Gunter Grass (1999), Heinrich Boll (1972), Herman Hesse (1946) and Thomas Mann (1929). Their novel work will be analyzed as an artistic reflection of their socio-critical thoughts on the history of Germany. Taught in English with possible FLAC section. Also offered as GERM 325. Course not offered 2004-2005. Instructor(s): *Eifler*

HUMA 327 WOMEN AND NATIONAL SOCIALISM (3)**Women and National Socialism**

Introduction to the Nazi idea of "womanhood" and the actual roles women played during National Socialism. Female perpetrators, Mitlaufer, a multiplicity of victims, and to resistance fighters. Taught in English. For students of German (at the minimal proficiency level intermediate-mid), and additional German reading/discussion hour for credit can be arranged. Offered as GERM 327 and WGST 317. Instructor(s): *Kecht*

HUMA 328 GERMAN ADAPTATIONS: TEXT-FILM (3)**German Adaptations: Text to Film**

Prominent novels of the 20th century will be studied for their possibilities or impossibilities of rendition from print medium to cinematic medium. From the myriad of adaptations we will concentrate on Thomas Mann: *Tod in Venedig*; Franz Kafka: *Das Schloss*; Klaus Mann: *Mehisto*; Gunter Grass: *Die Blechtrommel*; H. Boll: *Katharina Blum*; Jurek Becker: *Jacob der Lugner*. All films are subtitled in English. Course taught in English with a possible FLAC section. Also offered as GERM 328. Instructor(s): *Eifler*

HUMA 329 LIT. OF THE HOLOCAUST & EXILE (3)**Literature of the Holocaust and Exile**

Most of the authors from Germany and Austria, who were persecuted and fled into exile, used literature to search for meaning in life that apparently had been stripped of all meaning. Among these authors are the most distinguished writers of time, i.e. Th. and H. Mann, Brecht, Benjamin, Werfel, Döblin, J. Roth, S. Zweig, N. Sachs, Celan, Ausländer. Taught in English with a possible FLAC section. Enrollment limited to 20. Also offered as GERM 329. Course not offered 2004-2005. Instructor(s): *Weissenberger*

(F) = Fall; (S) = Spring

HUMA 330 COURTSHIP, LOVE, & MARRIAGE (3)**Courtship, Love, and Marriage**

The literature of the High Middle Ages is the first since antiquity to probe the hazards and potentials of romance between men and women, as well as single-sex friendship and love. This course will show how the literary ideal of love emerged in a society that was torn apart by war and rivalry. The poems and stories we will read belong to the treasures of medieval literature from the German lands. Taught in English with a possible FLAC section. Also offered as GERM 330, WGST 330 and MDST 335. Instructor(s): *Westphal*

HUMA 340 WALTER BENJAMIN (3)**Walter Benjamin: Aesthetics, History, and Politics**

Benjamin has been celebrated as a revolutionary Marxist, a theologian of Jewish Messianism, and as an essayist and literary critic. The course offers an introduction to his writings by way of situating them in the historical background of the Weimar Republic and the crises of European society on the eve of WWII. Taught in English with a possible FLAC section. Also offered as GERM 340 Course not offered 2004-2005. Instructor(s): *Steiner*

HUMA 344 KOREAN LITERATURE AND CULTURE (3)**Korean Literature and Culture**

Exploration of selections from modern Korean literature and watching Korean films. Includes background survey of Korean history, philosophy and religion. All texts and films in English translation. No previous knowledge of Korean required. Also offered as KORE 344 and ASIA 344. Prerequisite(s): Permission of the instructor. Instructor(s): *Lee*

HUMA 372 GERMAN FAIRY TALE (3)**Mapping German Culture: The German Fairy Tale: Old and New**

Discussion of several prototypes from the fairy-tale collection of the Brothers Grimm and the subsequent development of the literary fairy tale from Goethe and the Romantics to the 20th century. Also offered as GERM 326

HUMA 381 DOSTOEVSKY (3)**Dostoevsky**

Study of the major works of Dostoevsky. No knowledge of Russian required. Novels discussed include *The Brothers Karamazov*; *Crime and Punishment*; *The Idiot*; *The Possessed*; *Notes from the Dead House*; *Notes from the Underground*. Taught in English. Also offered as RUSS 352. Instructor(s): *Thompson*

HUMA 382 TOLSTOY (3)**Tolstoy**

Study of major works of Tolstoy. Novels and stories discussed include "War and Peace"; "Anna Karenina"; "The Kreutzer Sonata"; "Family Happiness"; "The Cossacks"; "The Devil"; "The Death of Ivan Ilych"; "Father Sergius"; "The Confessions" and "Hadj Murad." Taught in English. Also offered as RUSS 351. Instructor(s): *Thompson*

HUMA 498 INDEPENDENT STUDY (3)**ITAL (ITALIAN LANGUAGE AND CULTURE)****School of Humanities/Center for Study of Languages****ITAL 101 ELEMENTARY ITALIAN I (4)****Elementary Italian I**

This course is designed for students with little or no knowledge of Italian. We will concentrate on all language skills and provide basic elements of Italian civilization. Class work will be supplemented by regular attendance of language laboratory. We'll discover Italy in all its aspects: culture, art, music, cinema, fashion, food. Enrollment limited to 20. Prerequisite(s): No prior knowledge of Italian. Instructor(s): *Riga, Surlunga*

ITAL 102 ELEMENTARY ITALIAN II (4)**Elementary Italian II**

Continuation of ITAL 101. We will concentrate on all language skills and provide basic elements of Italian civilization. Enrollment limited to 20. Prerequisite(s): ITAL 101 or permission of the instructor. Instructor(s): *Riga, Surlunga*

ITAL 201 INTERMEDIATE ITALIAN I (4)**Intermediate Italian I**

A review and consolidation of the structure of contemporary Italian. Literary, cultural readings, and movies serve as a basis for the class discussion and conversation. Oral reports and compositions will help to increase fluency. Enrollment limited to 20. Prerequisite(s): ITAL 101, 102, or permission of the instructor. Instructor(s): *Surlunga*

ITAL 202 INTERMEDIATE ITALIAN II (4)**Intermediate Italian II**

Continuation of ITAL 201. A review and consolidation of contemporary Italian. Literary readings and cultural materials will serve as a basis for class discussion and conversation. Enrollment limited to 20. Prerequisite(s): ITAL 201, or permission of the instructor. Instructor(s): *Surlunga*

(*) = credit hours per semester

ITAL 309 ADVANCED ITALIAN REVIEW (3)**Advanced Italian Review**

This course is an intensive review of advanced structures in Italian language. Emphasis is on improving listening, comprehension, speaking, and writing skills through an in-depth study of various aspects of Italian contemporary literature and culture. Taught in Italian. Prerequisite(s): ITAL 202 or permission of the instructor. Instructor(s): *Surlunga*

JAPA (JAPANESE)**School of Humanities/Center for Study of Languages****JAPA 101 INTRODUCTION TO JAPANESE I (5)****Introduction to Japanese Language and Culture I**

Elementary Japanese emphasizes the learning of basic grammatical structures and vocabulary of modern Japanese to develop oral competence at the novice level. This goal is achieved primarily through aural-oral activities and task-oriented instruction. Students are expected to achieve the level of proficiency necessary to complete uncomplicated communicative tasks. Participation in weekly tutorial session is required. Enrollment limited to 20. Prerequisite(s): No prior knowledge of Japanese. Instructor(s): *Hiroko, Sato*

JAPA 102 INTRODUCTION TO JAPANESE II (5)**Introduction to Japanese Language and Culture II**

Continuation of JAPA 101. More focus on Kanjii practice with the Japanese Writing System. Further practice on conversation skills with a task-oriented instruction to language to achieve necessary abilities to handle successfully for uncomplicated communicative tasks in Japanese. Participation in weekly tutorial-session is required. Emphasis on development on cultural competence working on a project in group. Enrollment is limited to 20. Prerequisite(s): JAPA 101, placement test, or permission of the instructor. Instructor(s): *Sato*

JAPA 201 INTERMEDIATE JAPANESE I (5)**Intermediate Japanese Language and Culture I**

Further practice in conversation, grammar, reading and composition. Class will be conducted exclusively in Japanese. Students will be able to accomplish a variety of uncomplicated communicative tasks. More emphasis on kanji practice with the Japanese writing system. Participation in weekly tutorial session is required. Enrollment limited to 20. Prerequisite(s): JAPA 102, placement test, or permission of the instructor. Instructor(s): *Hiroko, Sato*

JAPA 202 INTERMEDIATE JAPANESE II (5)**Intermediate Japanese Language and Culture II**

Continuation of JAPA 201. Class will be conducted exclusively in Japanese. Proficiency-based instruction to language to achieve necessary abilities to handle successfully a variety of uncomplicated communicative tasks in Japanese. More emphasis on development of cultural competence in discussing in Japanese. Participation in weekly tutorial-session is required. Enrollment limited to 20. Prerequisite(s): JAPA 201, placement test, or permission of the instructor. Instructor(s): *Sato*

JAPA 301 ADV JAPANESE READING & COMP I (3)**Advanced Japanese Reading and Composition I**

Classes will be conducted in Japanese. Enrollment limited to 20. Texts include a variety of subjects and topics including web-based texts created and developed by the instructor to sustain students well-developed abilities and skills in Japanese. Reserved films and videos are included in the course as part of the text. Prerequisite(s): JAPA 202, placement test, or permission of the instructor. Instructor(s): *Hiroko, Sato*

JAPA 302 ADV JAPANESE READING & COMP II (3)**Advanced Japanese Reading and Composition II**

Continuation of JAPA 301. Classes will be conducted in Japanese. Texts include a variety of subjects and topics including web-based texts created and developed by the instructor to sustain students well-developed abilities and skills in Japanese. Students will work on a project of their particular interest for a presentation using Microsoft PowerPoint in Japanese. Enrollment limited to 20. Prerequisite(s): JAPA 301, placement test, or permission of the instructor. Instructor(s): *Hiroko, Sato*

JAPA 398 JAPANESE TEACHING PRACTICUM (3)**Japanese Teaching Practicum**

This course gives students with advanced proficiency in Japanese the opportunity to acquire teaching experience in the tutorial format. Includes regular meetings with supervising faculty member. Instructor(s): *Sato*

JAPA 399 JAPANESE TEACHING PRACTICUM (3)**Japanese Teaching Practicum**

This course gives students with advanced proficiency in Japanese the opportunity to acquire teaching experience in tutorial format. Includes regular meetings with supervising faculty member. Enrollment limited to 20. Instructor(s): *Sato*

(F) = Fall; (S) = Spring

JAPA 498 INDEPENDENT STUDY (HOURS VARIABLE)**Independent Study**

Permission of instructor. Instructor(s): *Sato*

JAPA 499 INDEPENDENT STUDY (HOURS VARIABLE)**Independent Study**

Permission of instructor. Instructor(s): *Sato*

KINE (KINESIOLOGY)**School of Humanities/Kinesiology****KINE 100 WRITE FOR PROFESSIONAL COMMUN (3)****Writing for Professional Communication**

An intensive study of how to write prose for effective and successful professional communication. Enrollment limited to 15.

KINE 120 FOUNDATIONS OF KINESIOLOGY (3)**Foundations of Kinesiology**

An introduction to studies in the areas of human movement: anatomy and physiology, physiology of exercise, motor behavior, biomechanics, sport history, sport psychology and sports management.

KINE 205 SOCIOLOGY OF SPORT (3)**Sociology of Sport and Ethics**

A study of the development of contemporary sport and its inter-relationships with existing social institutions. Emphasis will be on argument preparation and debate. Enrollment limited to 25.

KINE 206 FIRST AID/EMERGENCY CARE/CPR (1)**First Aid/Emergency Care/CPR**

The American Red Cross certification program for emergency care procedures for illness, traumatic injuries, and cardiopulmonary resuscitation. Enrollment limited to 25. Also offered as HEAL 206.

KINE 250 HUMAN ANATOMY (3)**Human Anatomy**

Introduction to human anatomy including concepts of function. Enrollment limited to 50.

KINE 260 INTRO TO SPORT MANAGEMENT (3)**Introduction to Sport Management**

Management theory and practice related to the sports industry. Enrollment limited to 50.

KINE 276 SPORT MANAGEMENT PRACTICUM (3)**Sport Management Practicum**

This class is designed to prepare students for their internship. Students will learn how to construct an effective resume, interviewing skills, business etiquette, etc. Students will also gain real-life experience by working in the sport business industry for 100 hours during the course of the semester. Prerequisite(s): KINE 260

KINE 300 HUMAN ANATOMY (3)**Human Anatomy**

Introduction to human anatomy including concepts of function. Enrollment limited to 40.

KINE 301 HUMAN PHYSIOLOGY (3)**Human Physiology**

This course will address the fundamental principles of human physiology at the cell, tissue, organ, organ system, and organism levels. Emphasis will be placed on mechanisms of function and homeostasis as achieved through the coordinated function of homeostatic control systems. Enrollment limited to 30.

KINE 302 BIOMECHANICS (3)**Biomechanics**

This course examines human movement by integrating anatomy with mechanics. Substantial emphasis will be placed on musculoskeletal anatomy and levers. Movement tasks will include normal ambulation rehabilitative movements, as well as advanced sport and exercise skills.

KINE 310 PERFORMANCE PSYCHOLOGY (3)**Performance Psychology**

Applied study of how the mind influences performance in sport, medicine, business, music and the arts. Non-Kinesiology majors are strongly encouraged to enroll as excellence will be discussed from the perspective of many disciplines and careers.

(#) = credit hours per semester

KINE 311 MOTOR LEARNING (3)**Motor Learning**

Physiological, neurological, and psychological factors affecting skill acquisition and development.

KINE 312 INDEPENDENT RESEARCH- PHYS/BIO (HOURS VARIABLE)**Independent Research in Physiology/Biomechanics**

Program of independent study for students with previous training in the biosciences and organismic level biomechanics and physiology. Includes a research paper. Students are expected to spend at least three hours per week in the laboratory for each semester hour of credit. If taken for 2 or more hours, counts as one required lab course but not as a Group A or Group B course. If receiving more than 2 credits, students will be required to participate in the university annual undergraduate symposium in the spring semester. Permission of instructor required. Enrollment limited to 10. Prerequisite(s): BIOS 211, BIOS 301, KINE 302, KINE 321 Instructor(s): *Weyand*

KINE 319 MEASUREMENT AND STATISTICS (3)**Measurement and Statistics**

Introduction to basic statistics, and elementary measurement theory with application to kinesiology. Enrollment limited to 40.

KINE 321 EXERCISE PHYSIOLOGY (3)**Exercise Physiology**

This course examines the acute and chronic effects of exercise on physiological function. Topics include nutrition, energy transfer, fatigue, metabolism, disease, aging, preventative medicine, genetics, elite performance, ergogenic aids, exercise testing, and specificity of training.

KINE 323 EXERCISE PHYSIOLOGY LABORATORY (1)**Exercise Physiology Laboratory**

This course introduces a wide variety of physiological and health-related testing with an emphasis on research techniques in exercise physiology. Experiences include examination of diet, general fitness, mechanisms of fatigue, graded exercise stress testing, oxygen utilization, movement efficiency, body composition, myocardial work, and spectrophotometric analysis.

KINE 325 MOTOR LEARNING LAB (1)**Motor Learning Lab**

Laboratory experiences in the physiological, neurological and psychological factors of human movement.

KINE 341 SPORTS MEDICINE & TRAINING (3)**Sports Medicine and Training**

Considers athletic injury and disorders affecting athletes; concepts of rehabilitation; injury assessment and management; treatment modalities and therapeutic exercises.

KINE 351 HUMAN ANATOMY LAB (1)**Human Anatomy Lab**

Study of the pro-sections and interactive computer instructional methodology are used for learning and understanding human anatomy in a gross anatomy examination laboratory at Texas Women's University in the Texas Medical Center. Hands-on examination of human anatomy in this course provides supplemental practical experience for lectures in KINE 350, Human Anatomy courses. Enrollment limited to 12.

KINE 360 SPORT FINANCE (3)**Sport Finance**

Acquisition and expenditure of financial resources for sports enterprise, from private and public sources.

KINE 362 SPORT MARKETING AND PROMOTION (3)**Sport Marketing and Promotion**

The role of communication media from print to broadcast in the business of sport, sales, marketing, and promotion will be considered at the amateur, collegiate, and professional sports levels, as well as in fitness, apparel, and commercial sport industry. For junior and senior students only.

KINE 364 SPORTS LAW & LABOR RELATIONS (3)**Sports Law and Labor Relations**

Study of legal principles, antitrust regulation, and labor law in the sport industry. Contracts, monopolies, business structure, and negotiation will be included. For junior and senior students only.

KINE 366 EVENT AND FACILITY MANAGEMENT (3)**Event and Facility Management**

Practical application of the principles and theory related to planning, organization, and execution of sport and entertainment events. Fund raising and charity management will be considered, as will the management of small and large scale facilities and event venues. At the conclusion of this course, students will be prepared to design, run, and evaluate events and event management teams.

(F) = Fall; (S) = Spring

KINE 375 SPORTS MEDICINE INTERNSHIP (3)**Sports Medicine Internship**

Internship experience for senior students in sports medicine track.

KINE 376 SPORT MANAGEMENT INTERNSHIP I (3)**Sport Management Internship I**

Internship experience for upper level students in sport management. Prerequisite(s): KINE 260

KINE 377 SPORT MANAGEMENT INTERNSHIP II (HOURS VARIABLE)**Sport Management Internship II**

Continued internship experience for senior students in sports management. Prerequisite(s): KINE 260

KINE 405 RESEARCH AND ANALYSIS (4)**Qualitative Research and Analysis**

An advanced research class focusing on qualitative inquiry and field investigation methodologies. Students will learn how to process human language, behavior, and interaction as research data. Special emphasis will be placed on establishing trustworthiness of interview, observation, and historical data sets, as well as the reliability and validity of qualitative analysis methods. Enrollment limited to 50.

KINE 410 CASE STUDIES IN PERFORMANCE (3)**Case Studies in Performance Enhancement**

An advanced, multidisciplinary consideration of how humans pursue excellence. Class work will center around problem solving using a case study methodology. Enrollment limited to 35.

KINE 412 MOTOR CONTROL (3)**Motor Control**

Exploration of the neurophysiological, behavioral, and biomechanical aspects of human movement and development.

KINE 421 HUMAN PERFORMANCE (3)**Human Performance from Darwin and Newton to Drugs and Genes**

The course explores the ultimate limitations to physical performance co-imposed by the natural laws that govern the physical world and the functional and mechanical properties of the biological tissues involved in movement. Topics considered include: speed, strength, power and endurance. Examples are drawn from extreme performers, both human and animal, to identify the functional limits of the musculoskeletal and cardiovascular systems brought about by evolution. The class involves reading original research articles and is conducted in seminar format. Enrollment limited to 10 Prerequisite(s): KINE 321 or permission of the instructor. Instructor(s): *Weyand*

KINE 440 RESEARCH METHODS (3)**Research Methods**

Designed to introduce students to research methods and topics appropriate for experimental research, historical research, social science research, marketing and legal research. Prerequisite(s): KINE 319

KINE 441 MUSCLE PHYSIOLOGY & PLASTICITY (3)**Muscle Physiology and Plasticity**

This course will specifically address cardiac and skeletal muscle physiology and plasticity when introduced to various stimuli. These stimuli include exercise, aging, injury, altitude, microgravity, heat, and pharmacological agents. An emphasis will be placed on practical application to health, disease, and performance enhancement. Enrollment limited to 10.

KINE 460 ADVANCED SPORT MANAGEMENT (3)**Advanced Sport Management**

An advanced study of research and policy in sport management. Emphasis will be developing a solid working knowledge of the current literature that guides academic and governing leaders in sport management. Prerequisite(s): KINE 260

KINE 462 BUSINESS AND SPORT ETHICS (3)**Business and Sport Ethics**

This course will take an intensive look at ethical business practices, particularly as they apply to sports, entertainment, and human performance industries. Case studies of unethical business strategies will be considered with an emphasis on how to correct or prevent such strategies. Over the semester, students will compile a contemporary, rigorous set of standards for business in the 21st century. Enrollment limited to 30.

KINE 466 MEDIA RELATIONS AND PR (3)**Media Relations and PR**

An applied study of media in business and sport with emphasis on press conferencing, news release, media-athlete relations, print journalism, television contracts, and public relations. Junior and senior students only. Prerequisite(s): KINE 260

(*) = credit hours per semester

KINE 490 SEMINAR IN SPORTS MEDICINE (3)**Seminar in Sports Medicine**

Considers issues related to athletic injury including mechanisms, assessment, management, and rehabilitation. Enrollment limited to 15.

KINE 495 INDEPENDENT STUDY (3)**Independent Study**

For junior and senior students only.

KINE 496 INDEPENDENT STUDY (3)**Independent Study**

See KINE 495.

KINE 498 SPECIAL TOPICS (HOURS VARIABLE)**Special Topics****KINE 499 TEACHING PRACTICUM (3)****Teaching Practicum**

Teaching experience for upper level students who have excelled in one area of kinesiology.

KORE (KOREAN)**School of Humanities/Center for Study of Languages****KORE 101 INTRODUCTION TO KOREAN I (5)****Introduction to Korean Language and Culture I**

Introduction to Korean language and culture. Acquisition of the fundamentals of the four language skills. Enrollment limited to 20. Prerequisite(s): No prior knowledge of Korean. Instructor(s): *Lee, Hgung-jin*

KORE 102 INTRODUCTION TO KOREAN II (5)**Introduction to Korean Language and Culture II**

Continuation of KORE 101. Prerequisite(s): KORE 101 or permission of the instructor. Enrollment limited to 20. Instructor(s): *Lee, Hyung-jin*

KORE 201 INTERMEDIATE KOREAN I (4)**Intermediate Korean Language and Culture I**

Continuation of the development of speaking, listening, reading, and writing skills. Enrollment limited to 20. Prerequisite(s): KORE 102 or permission of the instructor. Instructor(s): *Lee, Hyung-jin*

KORE 202 INTERMEDIATE KOREAN II (4)**Intermediate Korean II**

Development of intermediate language skills, conversation, and composition. Enrollment limited to 20. Prerequisite(s): KORE 201 or permission of the instructor. Instructor(s): *Lee, Hyung-jin*

KORE 311 SELECTED READING & TRANSLATION (3)**Selected Readings and Translations**

This course is designed to develop advanced students' reading and translation skills of literary (short plays) and non-literary Korean texts (newspaper articles, magazines, business catalogues, etc) of modern topics. Students are expected to significantly improve their reading and interpretation skills at the completion of this course. Enrollment limited to 15. Prerequisite(s): KORE 202 or permission of the instructor. Instructor(s): *Hyung-jin Lee*

KORE 344 KOREAN LITERATURE AND CULTURE (3)**Korean Literature and Culture**

Exploration of selections from modern Korean literature and watching Korean films. Includes background survey of Korean history, philosophy, and religion. All texts and films in English translation. No previous knowledge of Korean required. Also offered as ASIA 344 and HUMA 344. Prerequisite(s): Permission of the instructor. Instructor(s): *Lee, Hyung-jin*

KORE 345 LINGUISTIC STRUCTURE OF KOREAN (3)**Linguistic Structure of Korean and Related Languages in East Asia**

The course focuses on the origin of Korean and related languages. It explores the way the Korean language evolved and interacted with the other East Asian languages, including Chinese and Japanese. The socio-linguistic aspect of these languages will be studied, including the difference in male and female language usage and honorific systems. This class will be conducted in English. No previous knowledge of Korean is required. Also offered as ASIA 345 and LING 345.

(F) = Fall; (S) = Spring

KORE 346 KOREAN CULTURE AND HISTORY (3)**Korean Culture and History**

This course will introduce students to the important elements of Korean history and culture through a reading of modern Korean literature. The class will concentrate on the period from the early 20th century to the present. Special attention will be given to topics such as Korean religion, family life, and literature. Films will be used. All readings in English translation. Also offered as ASIA 346. Enrollment is limited to 20.

KORE 499 INDEPENDENT STUDY (HOURS VARIABLE)**Independent Study****LATI (LATIN)****School of Humanities/Classical Studies****LATI 101 ELEMENTARY LATIN I (3)****Elementary Latin I**

Study of the fundamentals of Latin grammar with emphasis on acquisition of reading skill. Also offered as MDST 101. Course offered Fall 2004. Instructor(s): *Wallace*

LATI 102 ELEMENTARY LATIN II (3)**Elementary Latin II**

Continuation of LATI 101. Also offered as MDST 102. Course offered Spring 2005. Instructor(s): *Wallace*

LATI 201 INTERMEDIATE LATIN I PROSE (3)**Intermediate Latin I Prose**

Review of grammar and readings in Latin prose. Also offered as MDST 211. Course offered Fall 2004. Instructor(s): *Wallace*

LATI 202 INTERMEDIATE LATIN II (3)**Intermediate Latin II**

Reading in Vergil's *Aeneid*. Also offered as MDST 212. Course offered Spring 2005. Instructor(s): *Wallace*

LATI 301 ADV LATIN:LIT OF EXILE (3)**Advanced Latin: Literature of Exile in the Roman Tradition**

We will focus upon Latin works on exile in prose and poetry, exploring the actual circumstances of exile in ancient Rome, the relation of exile poetry and elegy, Roman encounters with conceptions of foreigners, and the ways in which exile shaped Roman notions of cultural and individual identity. Authors include Virgil, Ovid, Cicero, Seneca, and others. Course not offered 2004-2005. Instructor(s): *McGill*

LATI 302 ADVANCED LATIN: ROMAN EPIC (3)**Advanced Latin: Roman Epic**

The course will read early fragments of epic verse and selections from Virgil, Ovid, Lucan, and Statius. Topics will include the nature of the epic genre, the develop of Roman epic and its relation to the Greek tradition, the styles of the individual epic poets, and the works' political and historical contexts. Course not offered 2004-2005. Instructor(s): *McGill*

LATI 303 ADV LATIN: PLAUTUS & TERENCE (3)**Advanced Latin: Plautus and Terence**

We will read, Plautus, Pseudolus, and Terence, *Adelphoe*. We will consider the background of Greek comedy and the contemporary social situation in Rome. Course not offered 2004-2005. Instructor(s): *Wallace*

LATI 310 ADVANCED LATIN: VIRGIL (3)**Advanced Latin: Virgil**

Study of the *Aeneid* in its Augustan context, with special emphasis on books 7-12. Course not offered 2004-2005. Instructor(s): *McGill*

LATI 311 LATIN PASTORAL POETRY (3)**Latin Pastoral Poetry**

Survey of Latin pastoral, with its idyllic country sides, singing shepherds, and lovely laments. Readings drawn from Virgil's *Eclogues*, Calpernius, Sirulus, Nemesians, Einsiedel, *Eclogues* and early Christian pastoral. Principal focus will be stylistic and thematic aspects of individual poems. Late history of pastoral, particularly in English tradition, will also be examined. Course not offered 2004-2005. Instructor(s): *McGill*

LATI 312 ADVANCED LATIN: OVID (3)**Advanced Latin: Ovid**

Survey of Ovid's elegiac and epic poetry with emphasis on the *Metamorphoses*. Course offered Spring 2005. Instructor(s): *Mackie*

(#) = credit hours per semester

LATI 313 CICERO AND CATULLUS (3)**Cicero and Catullus: Literature and Society in the Roman Republic**

We will read Cicero's *Pro Caelio* and several of Catullus' longer poems as a vehicle for understanding politics and culture in the late Roman Republic. Course offered Fall 2004. Instructor(s): *Yunis*

LATI 491 DIRECTED READING (3)**Directed Reading**

Independent work for qualified juniors and seniors in genres or authors not presented in other upper level courses. Course offered Fall 2004. Instructor(s): *Staff*

LATI 492 DIRECTED READING (3)**Directed Reading**

Independent work for qualified juniors and seniors in genres or authors not presented in other upper level courses. Course offered Spring 2005. Instructor(s): *Staff*

LATI 493 COMPREHENSIVE EXAMINATION (3)**Comprehensive Examination**

Reading courses taken by all classics and Latin majors in the spring semester of their senior year in preparation for the comprehensive examination given the last week of the semester. Open to classics and Latin majors only. Course offered Spring 2005. Instructor(s): *Staff*

LING (LINGUISTICS)**School of Humanities/Linguistics****LING 110 LANGUAGES OF THE WORLD (3)****Language of the World**

Survey of the world's languages; what are they, how are they? With emphasis on their diversity. Selected languages will be examined in more detail. Instructor(s): *Staff*

LING 200 INTRO TO THE SCIENTIFIC STUDY OF LANGUAGE (3)**Introduction to the Scientific Study of Language**

Overview of the scientific study of the structure and function of language. Introduces the main fields of linguistics: phonetics, phonology, morphology, syntax, semantics, discourse, historical linguistics, sociolinguistics, and psycholinguistics. Highlights the interdisciplinary relationship of linguistics with anthropology, sociology, psychology, and cognitive sciences. Also offered as LING 200. Instructor(s): *Staff*

LING 205 LANGUAGE & SOCIETY (3)**Language and Society**

This course treats language as a social phenomenon to show how language, personal identity and institutions of social control inter-relate. The course focuses on linguistic interaction in daily life and how gender, ethnic, class, activity and geographic variation affect language use. Also offered as WGST 205. Instructor(s): *Niedzielski*

LING 215 WORDS IN ENGLISH (3)**Words in English: Structure, History, Use**

Introduction to the study of English words, focusing on their internal structure and the nature and history of English vocabulary. Aims are to enhance knowledge of the rich lexical resources of the language and to facilitate the acquisition of scientific, technical, legal, and humanistic vocabulary. No previous linguistics background required. Also offered as ENGL 215. Instructor(s): *Kemmer*

LING 300 LINGUISTIC ANALYSIS (3)**Linguistic Analysis**

A hands-on, data-oriented approach to how different languages construct words and sentences. Students will develop skills in linguistic problem solving and the foundations for pursuing grammatical description. Topics: word classes, morphology, tense-aspect-modality, clause structure, word order, grammatical relations, existentials/possessives/locatives, voice/valence, questions, negation, relative clauses, complements causatives. Prerequisite: LING 200 Also offered as ANTH 300. Instructor(s): *Staff*

LING 301 PHONETICS (3)**Phonetics**

Introductory study of sound as it relates to speech and sound systems in the world's languages. Speech sounds are examined in terms of production mechanisms (articulatory phonetics), propagation mechanisms (acoustic phonetics), and perception mechanisms (auditory phonetics). Includes a basic introduction to Digital Signal Processing. Prerequisite: LING 200 or permission of instructor. Instructor(s): *Staff*

(F) = Fall; (S) = Spring

LING 305 HISTORICAL LINGUISTICS (3)**Historical Linguistics**

Exploration of the nature of language change in its phonological, morphological, syntactic, semantic, and socio-cultural aspects. Includes techniques of internal and comparative reconstruction of proto-languages. Also offered as ANTH 305. Instructor(s): *Staff*

LING 306 LANGUAGE, THOUGHT, AND MIND (3)**Language Thought and Mind**

Study of language as a cognitive system. Linguistic data as evidence for the cognitive structures and processes that enable people to learn and use language; how linguistic structure influences concept formation and patterns of thinking. Prerequisite(s): LING 200 or 300 or permission of instructor. Also offered as LING 506. Instructor(s): *Staff*

LING 309 PSYCHOLOGY OF LANGUAGE (3)**Psychology of Language**

Study of human and other animal communication. Also offered as PSYC 309. Instructor(s): *Staff*

LING 311 PHONOLOGY (3)**Phonology**

Introduction to sound patterns in the languages of the world and to interpretation of these patterns in four theoretical traditions: distribution of holistic segments (Phonemic Theory), process-oriented feature models (Generative and Autosegmental models), constraint-based models (Optimality Theory), and cognitive approaches (Natural Generative Phonology and Cognitive Phonology). Prerequisite(s): LING 200 or 300 or permission of instructor. Also offered as ANTH 323. Instructor(s): *Staff*

LING 312 OLD ENGLISH (3)**Old English**

This course is a combination of old English grammar and readings in old English. Also offered as ENGL 324 and MDST 311. Instructor(s): *Staff*

LING 313 LANGUAGE AND CULTURE (3)**Language and Culture**

Investigation of the relation between language and thought, language and worldview, and language and logic. Prerequisite: permission of the instructor. Also offered as ANTH 313. Instructor(s): *Tyler*

LING 314 SECOND LANGUAGE ACQUISITION (3)**Second Language Acquisition**

Review and analysis of major theoretical approaches to second language acquisition among adults. Major topics covered are: linguistic, cognitive and sociocultural factors in language development, instructed and non-instructed settings, research methodologies, development stages of acquisition. Major emphasis on morphosyntactic development, but attention to phonetics and lexicon too. Enrollment limited to 20. Also offered as SPAN 414. Instructor(s): *Staff*

LING 315 SEMANTICS: INTRO STUDY MEANING (3)**Semantics: Intro to the Study Meaning**

Introduction to basic approaches to the study of meaning in linguistics and related fields. Includes the cognitive representation of meaning, lexical categorization, conceptual structures, metaphor/metonymy, meaning change, pragmatic inference, and the relation of language and mind. Also offered as PSYC 315. Prerequisite(s): LING 200 or permission of the instructor. Instructor(s): *Staff*

LING 317 LANGUAGE AND COMPUTERS (3)**Language and Computers**

Introduction to the relation of computers and natural language. Includes exercises in programming computers to exhibit language-like behavior and using computers to analyze language, as well as an overview of different aspects of computational linguistics (e.g., speech recognition, syntactic parsing, semantic representation, and neural net models) and of the use of corpora and concordance programs to discover syntactic and semantic patterns of English. No programming experience required. Instructor(s): *Staff*

LING 318 STRUCTURE OF FRENCH (3)**Structure of French**

The primary objective of this course is to present contemporary French as a dynamic linguistic system shaped by historical, cognitive and sociological developments. Beyond the specific consideration of French, this course is concerned with the historical, psychological, and sociological dimensions that enter into the description of any language. Also offered as FREN 318 Prerequisite(s): FREN 202 or placement exam or AP credit or permission of instructor. Course offered Fall 2004. Instructor(s): *Achard*

(#) = credit hours per semester

LING 320 ORIGINS & EVOLUTION OF HUMAN LANGUAGE (3)**Origins and Evolution of Human Language**

How did Human Language arise, and what role did language play in the evolution of our species? This course introduces the basic sources of evidence (e.g., fossil remains, comparative primatology, neonatal development) for knowledge of human linguistic prehistory, including the spread of modern humans and human language throughout the world.

LING 321 STRUCTURE OF CHINESE (3)**Structure of Chinese: Syntax and Semantics**

Examination of syntactic and semantic features of Chinese with special attention to contrastive analysis of selected topics of Chinese and English, including expressions of tense and aspect, conditional and counterfactual, word formation (morphology), the notion of syntactic category, etc. Taught in English. Enrollment limited to 20. Also offered as CHIN 321.

LING 330 CORPUS LINGUISTICS (3)**Corpus Linguistics**

Investigation of the nature of linguistic representations from corpus-based analyses as compared to more traditional methodologies. Includes the collection of individual text data (or the exploration of existing text sources), the use of various text analysis programs (e.g. concordance software), and the production of lexical, syntactic, semantic, discourse, or cultural analyses of selected texts, using computer-based methods. Also offered as LING 530.

LING 340 THEORY & METHODS OF TEACHING E (3)**Theory and Methods of Teaching ESL**

Introduction to the theory and practice of teaching a second language. Includes the process of language learning viewed from social, psychological, and linguistic perspectives, as well as commonly used teaching "methods," such as the audiolingual method, situational language teaching, the natural approach, and TPR, among others. Required for linguistics majors in second language acquisition concentration.

LING 345 LINGUISTIC STRUCTURE OF KOREAN (3)**Linguistic Structure of Korean**

The course focuses on the origin of Korean and related languages. It explores the way the Korean language evolved and interacted with other East Asian Languages, including Chinese and Japanese. The socio-linguistic aspect of these languages will be studied, including the difference in male and female language used and the honorific systems. Also offered as KORE 345 and ASIA 345. Instructor(s): *Lee*

LING 351 INTRO TO SANSKRIT I (3)**Intro to Sanskrit I**

Also offered as SANS 301. Instructor(s): *Mitchell*

LING 352 INTRO TO SANSKRIT II (3)**Intro to Sanskrit II**

This course is a continuation of LING 351, SANS 301 and aims at developing vocabulary and grammatical skills through reading biblical prose and poetic texts. Prerequisite(s): LING 351/SANS 301. Also offered as SANS 302. Instructor(s): *E. Mitchell*

LING 373 THE LINGUISTIC TURN (3)**The Linguistic Turn: Language, Narration and Modernity**

This course will look at the role of narration in the construction of some of the basic forms of modernity and post-modernity, ranging from nationalism to performative approaches to identity. The first half of the course will introduce the basic linguistic tools necessary to analyze a variety of cultural materials, and the second half will be devoted to analyzing specific texts and student presentations. The course does not presuppose any technical training in linguistics or literary analysis. Also offered as ANTH 373.

LING 394 STRUCTURE OF ENGLISH LANGUAGE (3)**Structure of the English Language**

Introduction to modern English grammar, phonology, and semantics. Also offered as ENGL 394.

LING 395 HIST OF ENGLISH LANGUAGE (3)**History of the English Language**

Survey of 6,000 years of language history. Includes the phonological, morphological, syntactic, and semantic history of the English language from its Indo-European origins, through the Anglo-Saxon and Middle English periods, and up to the present day. Also offered as ENGL 395. Instructor(s): *Staff*

LING 402 SYNTAX AND SEMANTICS (3)**Syntax and Semantics**

Study of semantic categories and their formal expression in morphological, syntactic, and lexical units and patterns. Also offered as ANTH 402. Instructor(s): *Kemmer*

(F) = Fall; (S) = Spring

LING 403 HISTORY OF LINGUISTIC THEORY (3)**History of Linguistic Theory**

Study of North American linguistic thought in the 20th century. Emphasis is on the influence of de Saussure and the continuity of ideas.

LING 404 RSRCH METHOD & LINGUISTIC THEO (3)**Research Methodology and Linguistic Theories**

Compares and explores the nature of data, argumentation, goals, and assumptions of current theoretical approaches to language and linguistics. Centers on the discussion of general readings and source articles from cognitive, generative, typological, discourse-functional, and sociolinguistic orientations. Emphasizes critical thinking and awareness of the potential benefits and drawbacks of each approach. Prerequisite(s): LING 300 or permission of instructor. Instructor(s): *Englebreton*

LING 405 TOPICS IN LANGUAGE CHANGE (3)**Topics in Language Change**

Survey of the current research on the nature of diachronic processes and their implications for linguistic theory. May include diachronic typology, issues in genetic classification, grammaticalization, syntactic change, and analogical change. Content varies from year to year. Prerequisite(s): LING 305 or equivalent.

LING 406 COG STUDIES ANTHRO&LINGUISTICS (3)**Cognitive Studies in Anthropology and Linguistics**

Relations between thought, language, and culture. Special emphasis given to natural systems of classification and their underlying logical principles. Also offered as ANTH 406.

LING 407 FIELD TECHNIQUES AND ANALYSIS (3)**Field Techniques and Analysis**

Techniques and practice in the observation, analysis, and recording of a human language. LING 300, 301 and 402 recommended. Limited enrollment. Prerequisite(s): permission of instructor. Also offered as ANTH 407. Instructor(s): *Englebreton*

LING 408 FIELD TECHNIQUES & ANALYSIS (3)**Field Techniques and Analysis**

Continuation of LING 407. Course may be repeated for credit. Also offered as ANTH 408.

LING 409 SPECIAL TOPICS (3)**Special Topics**

Course content varies from year to year.

LING 410 RHETORIC (3)**Rhetoric**

Overview of classical series of rhetoric and followed by more intensive discussions both of contemporary theories and applications in a wide variety of disciplines. Also offered as ANTH 412.

LING 411 NEUROLINGUISTICS: (3)**Neurolinguistics:**

Study of language and the brain. Includes localization of speech, language, and memory functions, hemispheric dominance, pathologies of speech and language associated with brain damage, and hypotheses of the representation and operation of linguistic information in the cortex. Also offered as ANTH 411. Instructor(s): *Lamb*

LING 412 LANGUAGE & INTELLIGENCE (3)**Language and Intelligence**

Study of the primary basis of language in human intelligence. Includes exploration of conclusions from ethology, comparative psychology, and the study of learning and memory.

LING 413 APPROACHES TO SYNTAX (3)**Approaches to Syntax**

Examination of syntactic analysis from a variety of perspectives. Syntax is at the core of generative approaches to linguistics, including not only Chomskyan grammar, but also other generative theories such as HPSG, LFG, and Construction grammar. In addition there are a variety of nongenerative, functional approaches to syntactic description, including Cognitive Grammar. In this course, we examine the fundamental ideas underlying syntactic analysis and survey different theoretical approaches both generative and functional, to the subject. Instructor(s): *Staff*

LING 414 HERMENEUTICS & LING ANTHRO (3)**Hermeneutics and Linguistic Anthropology**

Application of linguistic theory and method in the analysis of cultural materials. Includes discourse analysis and the structure and interpretation of texts and conversation. Also offered as ANTH 414. Instructor(s): *Tyler*

(#) = credit hours per semester

LING 415 SOCIOLINGUISTICS (3)**Sociolinguistics**

Topic: Issues of language and gender, race and class. The course will begin with an overview of contemporary sociolinguistic theory and methodologies. We will then examine the linguistic consequences to speakers of their membership in groups defined in terms of gender, race and class. Also offered as WGST 415. Instructor(s): *Niedzielski, Nancy*

LING 416 LANGUAGE UNIVERSALS & TYPOLOGY (3)**Language Universals and Typology**

Investigation of what human languages have in common and a range of ways in which they can differ. Includes marking patterns in particular linguistic domains (e.g., case marking, animacy, and passives) and theoretical and methodological issues.

LING 417 COMPUTER-ASSTD LANG INSTRUCTIN (3)**Computer-Assisted Language Instruction**

Exploration of the theory and practice of using computers and other technologies in the language classroom. Includes language software, authoring systems, hypertext, e-mail, video, videodisc, and CD-ROM, as well as a survey of the ways that technology can be used in language teaching and various aspects of courseware development. Required for linguistics majors in second language acquisition concentration.

LING 418 ACQUISITION OF L2 SPANISH (3)**The Acquisition of L2 Spanish**

This course reviews the available research on the acquisition of the phonology, vocabulary, morphosyntax and discursive pragmatic features of Spanish as a second language. Aims to provide students with a thorough understanding of second language acquisition processes that are specific to Spanish but generalizable to other languages as well. Also offered as SPAN 382. Prerequisite(s): Third year Spanish or permission of the instructor.

LING 419 BILENGUALISM (3)**Bilingualism**

This course analyzes bilingualism from a variety of perspectives including cognitive, linguistic, and socio-cultural viewpoints. Topics to be covered include conceptual representations of the lexicon, sentence parsing, levels of activation of bilingual modes, lexical, phonological syntactic and pragmatic interference, code-switching, cultural identity, bilingual education, language and thought, etc. Also offered as SPAN 440. Prerequisite(s): Advanced Spanish or permission of the instructor. Instructor(s): *Staff*

LING 420 COGNITION AND L2 ACQUISITION (3)**Cognition and L2 Acquisition**

This course provides an in-depth analysis of general cognitive processes in second language development and cognitive based theories of second language acquisition. Some of the issues to be discussed in detail are perception, attention, memory, automaticity, restructuring, sentence processing, learnability theories, language and intelligence, critical periods for language acquisition, etc. Also offered as SPAN 442, 542.

LING 421 SOCIOLINGUISTICS OF SPANISH (3)**Sociolinguistics of Spanish**

Analysis of the modern varieties of Spanish covering phonetics, vocabulary, morphosyntax, and pragmatics. The course requires the completion of a research project with an empirical database. Prerequisite(s): Third-year Spanish or permission of instructor. Also offered as SPAN 350.

LING 422 TENSE/ASPECT IN L2 ACQUISITION (3)**The Development of Tense and Aspect in Second Language Learning**

This course provides an introduction to (1) the morphosyntactic analysis of tense-aspect systems, (2) the development of inflectional morphology among first and second language learners, (3) the sequence and rate of development of aspectual contrasts, (4) the differences between natural and academic learning sessions and (5) the impact of pedagogical manipulations. Also offered as SPAN 444. Prerequisite(s): Advanced Spanish or permission of the instructor. Instructor(s): *Salaberry*

LING 423 LINGUISTIC STRUCTURE OF SPAN (3)**Linguistic Structure of Span**

Synchronic study of modern Spanish phonology and syntax, including peninsular and Hispanic-American variants. Also offered as SPAN 424.

LING 424 THE EVOLUTION OF SPANISH (3)**The Evolution of Spanish**

This course provides an introduction to (1) major historical changes that led to the evolution of Proto-Romance (Vulgar Latin) to the Castillian dialect of Spanish (español or castellano), and (2) current developments and expected changes in the future of the various representatives of former Castillian dialect. Prerequisite(s): Third-year Spanish or permission of instructor. Also offered as SPAN 316.

(F) = Fall; (S) = Spring

LING 435 TOPICS IN GERMANIC LINGUISTICS (3)**Topics in Germanic Linguistics**

Topic: Old Icelandic

LING 451 ADVANCED SANSKRIT I (3)**Advanced Sanskrit I**

Review of the nominal declensions and the classes of verbs to be followed by a series of readings from Lanman. Special attention will be given to the study of compounds and to Sanskrit verse forms. Also offered as SANS 401.

LING 452 ADVANCED SANSKRIT II (3)**Advanced Sanskrit II**

Continuation of LING 451. Also offered as SANS 402.

LING 480 INDEPENDENT STUDY (3)**Independent Study****LING 481 INDEPENDENT STUDY (3)****Independent Study****LING 482 HONORS PROJECT (3)****Honors Project**

Independent directed research toward preparation of an undergraduate honors project or thesis. Course may be repeated for credit. Prerequisite(s): permission of instructor.

LING 490 DISCOURSE ANALYSIS (3)**Discourse Analysis**

An overview of features and organization of language-in-use. Examination of the macro-structure of different genres of discourse, the interplay between language and social/cultural interaction, and the role of discourse and communication in motivating and shaping grammatical form. Prerequisite(s): LING 300 or permission of instructor. Instructor(s): *Englebretson*

LING 500 LINGUISTIC ANALYSIS (3)**Linguistic Analysis**

Graduate version of LING 300.

LING 501 PHONETICS (3)**Phonetics**

Graduate version of LING 301.

LING 502 SYNTAX AND SEMANTICS (3)**Syntax and Semantics**

Graduate version of LING 402. Instructor(s): *Kemmer*

LING 503 MODERN LINGUISTIC THEORY (3)**Modern Linguistic Theory**

Graduate version of LING 403.

LING 505 HISTORICAL LINGUISTICS (3)**Historical Linguistics**

Graduate version of LING 305.

LING 506 LANGUAGE, THOUGHT, AND MIND (3)**Language, Thought, and Mind**

Graduate version of LING 306.

LING 507 FIELD TECHNIQUES AND ANALYSIS (3)**Field Techniques and Analysis**

Graduate version of LING 407. Instructor(s): *Englebretson*

LING 508 FIELD TECHNIQUES AND ANALYSIS (3)**Field Techniques and Analysis**

Continuation of LING 507. Course may be repeated for credit.

LING 511 PHONOLOGY (3)**Phonology**

Graduate version of LING 311.

(#) = credit hours per semester

LING 513 LANGUAGE AND CULTURE (3)

Language and Culture

Investigates the relation between language and thought, language and worldview, and language and logic. Also offered as ANTH 513.

LING 515 SEMANTICS (3)

Semantics: Intro to the Study of Meaning

Graduate version of LING 315.

LING 516 THE EVOLUTION OF SPANISH (3)

The Evolution of Spanish

Graduate version of LING 424.

LING 517 LANGUAGE AND COMPUTERS (3)

Language and Computers

Graduate version of LING 317.

LING 530 CORPUS LINGUISTICS (3)

Corpus Linguistics

Graduate version of LING 330.

LING 540 THEORY AND METHODS OF ESL (3)

Theory and Methods of Teaching ESL and Foreign Lang

Graduate version of LING 340.

LING 550 DEPARTMENTAL COLLOQUIUM (1)

Departmental Colloquium

Faculty, graduate students, and invited guests meet weekly to present reports on current research or to discuss current issues in linguistics. Course may be repeated for credit. Instructor(s): *Niedzielski*

LING 551 SEMINAR IN LINGUISTIC THEORY (3)

Seminar in Linguistic Theory

Topics vary from year to year.

LING 552 SEMINAR IN SYNTAX & SEMANTICS (3)

Seminar in Syntax and Semantics

Topic: Textual analysis Instructor(s): *Shibatani*

LING 553 SEMINAR LINGUISTIC STRUCTURE (3)

Seminar Linguistic Structure

Topics vary from year to year.

LING 554 SEMINAR IN SEMANTIC THEORY (3)

Seminar in Semantic Theory

Topics vary from year to year.

LING 555 SEMINAR IN PHONETICS (3)

Seminar in Phonetics

Topics will vary from year to year. In fall 2004 the topic is to be "SPEECH PERCEPTION". Prerequisite(s): LING 301. Instructor(s): *Niedzielski*

LING 556 SEMINAR IN LANGUAGE VARIATION (3)

Seminar in Language Variation

Topics vary from year to year.

LING 557 SEMINAR IN DISCOURSE (3)

Seminar in Discourse

Topic: Stance taking in discourse.

LING 581 GRADUATE RESEARCH (HOURS VARIABLE)

Graduate Research

Course may be repeated for credit.

LING 582 GRADUATE RESEARCH (HOURS VARIABLE)

Graduate Research

Course may be repeated for credit.

(F) = Fall; (S) = Spring

LING 583 GRADUATE RESEARCH (HOURS VARIABLE)**Graduate Research**

Course may be repeated for credit.

LING 584 GRADUATE RESEARCH (HOURS VARIABLE)**Graduate Research**

Course may be repeated for credit.

LING 585 GRADUATE RESEARCH (HOURS VARIABLE)**Graduate Research****LING 586 GRADUATE RESEARCH (HOURS VARIABLE)****Graduate Research**

Course may be repeated for credit.

LING 587 GRADUATE RESEARCH (HOURS VARIABLE)**Graduate Research****LING 588 GRADUATE RESEARCH (HOURS VARIABLE)****Graduate Research**

Course may be repeated for credit.

LING 590 TEACHING LINGUISTICS (HOURS VARIABLE)**Teaching Linguistics**

Course may be repeated for credit.

LING 591 TEACHING LINGUISTICS (HOURS VARIABLE)**Teaching Linguistics**

Course may be repeated for credit.

LING 610 SEM: LANGUAGE METHODOLOGY (3)**Seminar: Topics in Language Methodology**

Exploration and analysis of a range of theories, issues and problems in foreign language instruction. Areas of inquiry include: the nature of language acquisition, pedagogical methods, instructional technologies, development of teaching materials, and testing/assessment. Required for all graduate language teaching assistants. Instructor(s): *Staff*

LING 611 LANGUAGE METHODOLOGY PRACTICUM (3)**Language Methodology Practicum**

The course, a continuation of LING 610, allows students to gain further knowledge and expertise in aspects of Language Methodology by attending a series of workshops on topics such as Technology and Language Learning, Writing, and content-based instruction. Students will also complete assignments that supplement or expand on the material presented in the workshops. Instructor(s): *Staff*

LING 800 DISSERTATION RESEARCH (HOURS VARIABLE)**Dissertation Research**

Course may be repeated for credit.

LPAP (LIFETIME PHYS ACTIVITY PROGRAM)**No College Designated/Lifetime Physical Activity****LPAP 100 INTRO TO TENNIS (HOURS VARIABLE)****Introduction to Tennis**

This class will provide the student with the knowledge of tennis rules, sportsmanlike qualities, and a sound foundation of the basic tennis strokes so the game can be played with confidence and competence.

LPAP 101 INTERMEDIATE TENNIS (HOURS VARIABLE)**Intermediate Tennis**

This class will provide the student with the knowledge of tennis rules, sportsmanlike qualities, and a sound foundation of the basic tennis strokes so the game can be played competitively with confidence and competence. Prerequisite(s): LPAP 100

LPAP 102 INTRO TO RACQUETBALL (HOURS VARIABLE)**Introduction to Racquetball**

An introduction to the basic skills and knowledge necessary to play badminton at the beginning level. The goal of this class is to motivate students to incorporate racquetball at the intermediate level.

(*) = credit hours per semester

LPAP 103 INTERMEDIATE TO RACQUETBALL (HOURS VARIABLE)**Intermediate Racquetball**

This course is designed to introduce the student to the skills and strategy necessary to compete in racquetball at the intermediate level. Prerequisite(s): LPAP 102

LPAP 104 INTRO RACQUETBALL & BADMINTON (HOURS VARIABLE)**Introduction to Racquetball and Badminton**

An introduction to basic skills and knowledge necessary to play racquetball & badminton at the beginning level.

LPAP 105 INTRO TO BADMINTON (HOURS VARIABLE)**Introduction to Badminton**

This course is designed to develop theoretical knowledge and basic badminton strokes and strategies.

LPAP 106 INTERM INST LIFETIME PHYS ACTV (1)**Intermediate Instruction in Lifetime Physical Activity**

Open to all students on space availability basis with priority to KINE major students.

LPAP 110 INTRO TO GOLF (HOURS VARIABLE)**Introduction to Golf**

Topics to be covered include: fundamentals, set up, aim & alignment, putting, chipping, irons, and woods. The rules and etiquette will also be covered.

LPAP 111 INTERMEDIATE GOLF (HOURS VARIABLE)**Intermediate Golf**

This class is intended for an intermediate level player. Topics to be covered include: fundamentals, set up, aim & alignment, putting, chipping, irons, and woods. Prerequisite(s): LPAP 110

LPAP 112 ARCHERY (HOURS VARIABLE)**Archer**

This course is designed to offer basic knowledge and skill development in archery. Recurve bows will be used during class activities.

LPAP 114 DISC GOLF (HOURS VARIABLE)**Disc Golf**

This is a course designed to offer an introduction to the fundamental disc golf skills, basic rules & strategies. The acquisition and understanding of these skills and strategies will be presented through activity and lecture sessions.

LPAP 120 INTRO TO DISC GOLF/ULTIMATE (HOURS VARIABLE)**Introduction to Disc Golf/Ulimate**

This is a course designed to offer an introduction to the fundamental disc golf and ultimate Frisbee skills, basic rules, and team play strategies. The acquisition and understanding of these skills and strategies will be presented through activity and lecture sessions.

LPAP 121 ULTIMATE FRISBEE (HOURS VARIABLE)**Ultimate Frisbee**

This is a course designed to offer an introduction to the fundamental ultimate Frisbee skills, basic rules, and team play strategies. The acquisition and understanding of these skills and strategies will be presented through activity and lecture sessions.

LPAP 122 INTRO COED FLAG FOOT/SOFT BALL (HOURS VARIABLE)**Introduction to Flag Football/Softball**

This is a beginning level course designed to offer an introduction to the fundamental softball and flag-football skills, basic rules, and team play strategies. The acquisition and understanding of these skills and strategies will be presented through activity and lecture sessions.

LPAP 123 FLAG FOOTBALL (HOURS VARIABLE)**Flag Football**

This is a beginning level course designed to offer an introduction to the fundamental flag-football skills, basic rules, and team play strategies. The acquisition and understanding of these skills and strategies will be presented through activity and lecture sessions.

LPAP 124 SOFTBALL (HOURS VARIABLE)**Softball**

This is a beginning level course designed to offer an introduction to the fundamental skills, basic rules, and team play strategies. The acquisition and understanding of these skills and strategies will be presented through activity and lecture sessions.

(F) = Fall; (S) = Spring

LPAP 125 INTRO TO SOCCER (HOURS VARIABLE)**Introduction to Soccer**

This is an entry level course offering fundamental soccer skills, basic rules, and team tactics. These skills, rules, and tactics will be presented through active participation and instruction and evaluated through physical performance, participation and written assessment.

LPAP 126 INTER SOCCER (HOURS VARIABLE)**Intermediate Soccer**

This is an intermediate level course offering advanced soccer skills and team tactics. These skills and tactics will be presented through active participation and instruction and evaluated through physical performance, participation and written assignment. Prerequisite(s): LPAP 125

LPAP 127 INTRO TO VOLLEYBALL/BASKETBALL (HOURS VARIABLE)**Introduction to Volleyball/Basketball**

This is a beginning level course designed to offer an introduction to the fundamental basketball and volleyball skills, basic rules, and team play strategies. The acquisition and understanding of these skills and strategies will be presented through activity and lecture sessions.

LPAP 128 VOLLEYBALL (HOURS VARIABLE)**Volleyball**

This is a beginning level course designed to offer an introduction to the fundamental volleyball skills, basic rules, and team play strategies. The acquisition and understanding of these skills and strategies will be presented through activity and lecture sessions.

LPAP 129 BASKETBALL (HOURS VARIABLE)**Basketball**

This is a beginning level course designed to offer an introduction to the fundamental basketball skills, basic rules, and team play strategies. The acquisition and understanding of these skills and strategies will be presented through activity and lecture session.

LPAP 131 INTRO TO MIDDLE EASTERN DANCE (HOURS VARIABLE)**Introduction to Middle Eastern Dance**

This is a beginning level course which will introduce the basic movements of Middle Eastern Dance. The students will also be expected to develop a knowledge and appreciation of Middle Eastern dance as a cultural, communal, and recreational activity.

LPAP 132 INTER MIDDLE EASTERN DANCE (HOURS VARIABLE)**Intermediate Middle Eastern Dance**

This is an intermediate course which will introduce advanced movements of Middle Eastern Dance. The students will also be expected to develop a knowledge and appreciation of Middle Eastern dance as a cultural, communal, and recreational activity. Prerequisite(s): LPAP 131.

LPAP 133 CAPOEIRA (HOURS VARIABLE)**Capoeira**

The student will define Capoeira, understand how it is played and familiarize himself/herself with the rules and traditions of this fascinating aspect of the Brazilian culture.

LPAP 134 CLASSICAL INDIAN DANCE (HOURS VARIABLE)**Classical Indian Dance**

This course focuses on the Bharatanatyam form very popular in South India. Bharatanatyam is the oldest of all classical Indian forms and its narrative style is known for its grace, purity, tenderness and its statuesque poses.

LPAP 140 INTRO TO BALLROOM DANCE (HOURS VARIABLE)**Introduction to Ballroom Dance**

Students will learn the basic movements of American Ballroom Dance including the foxtrot, waltz, swing, and tango. Students will obtain a knowledge and appreciation of ballroom dance as a historical and recreational activity.

LPAP 141 INTER BALLROOM DANCE (HOURS VARIABLE)**Intermediate Ballroom Dance**

Students will learn the advanced movements of American Ballroom Dance. Students will obtain a knowledge and appreciation of ballroom dance as a historical and recreational activity. Prerequisite(s): LPAP 140

LPAP 142 INTRO TO LATIN DANCE (HOURS VARIABLE)**Introduction to Latin Dance**

Course content includes demonstration of and brief lectures on the Merengue, Salsa, Mambo, Rumba, Cha Cha, and Tango. Students will participate in drills created to improve footwork, arm positioning, and leading and following skills.

(#) = credit hours per semester

LPAP 143 INTER LATIN DANCE (HOURS VARIABLE)**Intermediate Latin Ballroom**

Course content includes demonstration of and brief lectures on the intermediate level of Merengue, Salsa, and Cha Cha. Topics include history of Latin Dance, social dance terminology, proper body alignment, leading and following, and social dance etiquette. Prerequisite(s): LPAP 142

LPAP 144 INTRO TO COUNTRY WESTERN (HOURS VARIABLE)**Introduction to Country Western**

Course content includes demonstration of and brief lectures on the Two Step and Polka. Drills are created to improve footwork, arm positioning, and leading and following skills. Other topics: history of C&W Dance, terminology, proper body alignment, leading and following, and social dance etiquette.

LPAP 145 INTER COUNTRY WESTERN (HOURS VARIABLE)**Intermediate Country Western**

Course content includes demonstration of and brief lectures on the intermediate level Two Step, Polka, and an introduction to Western Cha Cha. Prerequisite(s): LPAP 144

LPAP 146 INTRO TO SWING DANCE (HOURS VARIABLE)**Introduction to Swing Dance**

Course content includes demonstration of and brief lectures on the East Coast Swing, including swing and triple step versions. Students will participate in drills created to improve footwork, arm positioning, and leading and following skills.

LPAP 147 INTER SWING DANCE (HOURS VARIABLE)**Intermediate Swing Dance**

Course content includes demonstration of and brief lectures on the intermediate level of East Coast Swing, including single step and triple step versions. Prerequisite(s): LPAP 146

LPAP 150 IMPROV & COMP DANCE (HOURS VARIABLE)**Improvisation and Composition Dance**

This class will focus on expanding students creative movement potential through improvisational dance which will allow for self discovery, self expression, and build skill in dance making (composition/choreography).

LPAP 151 ALEXANDER TECHNIQUE (HOURS VARIABLE)**Alexander Technique**

Students will gain an historic perspective of Frederick Matthias (F.M.) Alexander and his work and learn the principles of the Alexander Technique, including awareness, inhibition, direction, primary control and non-doing (or undoing) in other words, to learn how to do nothing well.

LPAP 152 INTRO TO MODERN DANCE (HOURS VARIABLE)**Introduction to Modern Dance**

Students are expected to understand modern dance as a unique dance form with similarities and differences to ballet/jazz. Students will also learn the basic techniques of modern dance, which include: basic body alignment, neuromuscular coordination, rhythmic accuracy, movement memory, spatial skills, use of energy, and performing skills.

LPAP 153 INTER MODERN DANCE (HOURS VARIABLE)**Intermediate Modern Dance**

To develop a higher level of modern dance technique to include: basic body alignment; neuromuscular coordination; rhythmic accuracy; movement theory; spatial skills; use of energy; and performing skills. Students are expected to master complex movement phrases and become familiar with stylistic, and historic components of modern dance.

LPAP 154 ADVANCED MODERN DANCE (HOURS VARIABLE)**Advanced Modern Dance**

To develop an advanced level of modern dance technique to include: basic body alignment; neuromuscular coordination; rhythmic accuracy; movement memory; spatial skills; use of energy; and performing skills. Students are expected to master complex movement phrases and become familiar with stylistic, and historical components of modern dance.

LPAP 155 INTRO TO BALLET (HOURS VARIABLE)**Introduction to Ballet**

This class will introduce students to the basic principles and steps of ballet technique. It is designed to increase the students knowledge and understanding of the structure of the human body and how the structure functions to greatest benefit in ballet technique.

(F) = Fall; (S) = Spring

LPAP 156 INTER BALLET (HOURS VARIABLE)**Intermediate Ballet**

This class will introduce students to advanced principals and steps of ballet technique. Prerequisite(s): LPAP 155

LPAP 160 AQUATIC EXERCISE (HOURS VARIABLE)**Aquatic Exercise**

This course is designed to increase fitness through the use of a variety of water exercise activities. The course will contain a cognitive component which includes information concerning fitness, health, and wellness. The course will contain a written exam, fitness testing, lab activities, and shallow and deep water work-outs.

LPAP 161 INTRO TO AQUATIC ACTIVITIES (HOURS VARIABLE)**Aquatic Activities**

This course is designed to offer basic knowledge and skill development in a variety of aquatic activities. Focus will be given to basic swimming and diving techniques as well as comparative, recreational, and fitness activities.

LPAP 162 WATER SAFETY INSTRUCTOR (HOURS VARIABLE)**Water Safety Instructor**

Students will work toward the American Red Cross Water Safety Instructor Certification.

LPAP 163 LIFEGUARDING (HOURS VARIABLE)**Lifeguarding**

This course offers you training and possible certification in the American Red Cross Lifeguard Training, Community First Aid and Safety, and CPR for the Professional Rescuer.

LPAP 164 INTRO TO FITNESS SWIMMING (HOURS VARIABLE)**Introduction to Fitness Swimming**

This course is designed to increase fitness through the use of swimming. There will also be a knowledge component to the course which includes information concerning fitness, health, stroke mechanics and wellness. The objective of the course is for students to design their own swimming work-outs to meet their fitness goals.

LPAP 165 INTERMEDIATE FITNESS SWIMMING (HOURS VARIABLE)**Intermediate Fitness Swimming**

This intermediate course is designed to increase fitness through the use of swimming. There will also be a knowledge component to the course which include information concerning fitness, health, stroke mechanics and wellness. Students will design their own swimming program based on self selected goals for the semester.

LPAP 166 BEGINNING SWIMMING (HOURS VARIABLE)**Beginning Swimming**

This course is designed to offer basic knowledge and skill for the beginning swimmer. The following strokes and skills will be taught during the class: water entries, floating, rhythmic breathing patterns, front crawl, elementary back stroke, back crawl, deep water exploration, and treading water.

LPAP 167 SPECIALIZED ACQUATICS (HOURS VARIABLE)**Specialized Aquatics**

This course is designed to offer more advanced knowledge and skill development in a variety of aquatic activities. Focus will be given to areas based on student selection.

LPAP 168 LIFEGUARD INSTRUCTOR (HOURS VARIABLE)**Specialized Aquatics**

This course offers training as American Red Cross Lifeguard Instructor. Instructor certifications can be earned in the class. Students must have knowledge and skills in lifeguard training to enroll in the class.

LPAP 170 YOGA (HOURS VARIABLE)**Yoga**

This course provides a solid foundation in the principals of yoga theory and practice. By incorporating traditional philosophy, physical poses (asana) and breath control (pranayama), this class helps you to discover vitality, flexibility and strength within yourself. Through committed involvement and an open mind, you will experience first hand the profound aspects of yoga.

LPAP 171 TAI CHI (HOURS VARIABLE)**Tai Chi**

This is a beginning course which is designated to introduce the student to Tai Chi.

LPAP 172 INTRO TO FENCING (HOURS VARIABLE)**Introduction to Fencing**

This is a beginning course which is designed to introduce the student to the skills and strategy necessary to enjoy fencing.

(#) = credit hours per semester

LPAP 173 INTER FENCING (HOURS VARIABLE)**Intermediate Fencing**

This course is designed to introduce the student to the skills and strategy necessary to participate in fencing at the intermediate level.

LPAP 174 ADVANCED FENCING (HOURS VARIABLE)**Advanced Fencing**

This course is designed to introduce the student to the skills and strategy to being competing in fencing at a more advanced level. Prerequisite(s): LPAP 173

LPAP 175 MARTIAL ARTS (HOURS VARIABLE)**Martial Arts**

This course introduces students to a system of martial arts (Chayon-Ryu). It is based on the idea that self-defense should utilize only natural movements, instead of contrived, awkward movements. The system draws from several of the best martial art styles.

LPAP 176 SELF DEFENSE FOR WOMEN (HOURS VARIABLE)**Self Defense for Women**

This course exposes students to a program of realistic, self-defense tactics and techniques. It is a comprehensive course for women that begins with awareness, prevention, risk reduction and avoidance, while progressing on the basics of hands-on defense training.

LPAP 180 WALK, JOG, RUN (HOURS VARIABLE)**Walk, Jog, Run**

The purpose of this class is to teach the student skills on how to improve cardiovascular and muscular strength, endurance, stress management and weight control as it pertains to the class and achieving total wellness.

LPAP 181 PERSONAL FITNESS (HOURS VARIABLE)**Personal Fitness**

Class will consist of brief lectures on health and fitness topics. Students will be exposed to activities that may be incorporated into an individualized personal fitness program. The goal of this course is to motivate the students to include physical activity as an integral part of his/her lifestyle.

LPAP 182 WEIGHT TRAINING (HOURS VARIABLE)**Weight Training**

The class will consist of brief lectures and discussions on the topics listed in the course outline. Students will be exposed to several different types of weight training techniques throughout the semester that may be incorporated into an individuals personal fitness program.

LPAP 183 WEIGHT TRAINING & CONDITIONING (HOURS VARIABLE)**Weight Training and Conditioning**

The class will consist of brief lectures and discussions on the topics listed in the course outline. Students will be exposed to several different types of weight training techniques throughout the semester that may be incorporated into an individuals personal fitness program.

LPAP 184 BICYCLING (HOURS VARIABLE)**Bicycling**

The class will consist of brief lectures and discussions on the topics listed in the course outline. Students will be exposed to several drills that are geared toward improving bicycling skills. Students will also engage in group cycling that will take them off campus.

LPAP 185 CARDIO KICKBOXING (HOURS VARIABLE)**Cardio Kickboxing**

Kickboxing combines the best of boxing and other martial arts techniques and brings it to you in an exciting and easy to learn format. As the name implies, cardio kickboxing involves kickboxing movements, but with cardiovascular training principles.

LPAP 186 PILATES (HOURS VARIABLE)**Pilates**

This is a beginning level course designed to offer an introduction to the fundamentals and beginner/intermediate classic Pilates mat work exercises. The acquisition and understanding of these exercises, their goal, and intent will be presented through activity and lecture sessions and will be evaluated through physical performance, participation, and written assessment.

LPAP 187 GROUP FITNESS (HOURS VARIABLE)**Group Fitness**

The purpose of this class will be to provide students a learning opportunity in the broad area of group exercise and provide basic information for exercise leadership.

(F) = Fall; (S) = Spring

LPAP 188 TRACK & FIELD (HOURS VARIABLE)**Track and Field**

The main objective of this class to introduce students to track and field concepts, running events, and field events through various teaching methods. Students will have an opportunity to identify what track event and field event skills they possess through skill trials.

LPAP 190 INTRO TO OUTDOOR ACTIVITIES (HOURS VARIABLE)**Introduction to Outdoor Activities**

This course will offer students the opportunity to explore a variety of outdoor activities. Possible activities will include; orienteering, boating, camping, snorkeling and SCUBA, and hiking. The class will be a combination of knowledge and hands on practical application.

LPAP 198 NUTRITION & FITNESS CONCEPTS (HOURS VARIABLE)**Nutrition and Fitness Concepts**

The class will consist of lectures and discussions on the topics listed in the course outline. Students will also be exposed to information and activities throughout the semester that may be incorporated into an individual's personal wellness program.

MANA (MANAGERIAL STUDIES)**School of Social Sciences/Managerial Studies****MANA 404 MANAGEMENT COMMUNICATIONS (3)****Management Communications in a Consulting Simulation**

Section 001- As the capstone course of the MANA major, teaches managerial communications with a focus on business strategy and communication problems; includes writing proposals, reports, and business strategy presentations. Enrollment is limited to 30. Students must have completed 8 of the required course for the MANA major. Draws on information learned in these required courses. For MANA majors only. Section 002- (Offered only in spring semester). As the capstone course for the MANA major, teaches managerial communications with a focus on entrepreneurship as well as management; includes writing a business plan, a marketing strategy, and a financing presentation. Students must have completed 8 of the required courses for the MANA major. Draws on information learned in these required courses. For MANA majors only. Enrollment limited to 15.

MANA 497 INDEPENDENT STUDY (3)**Independent Study**

Independent study on an approved project under faculty supervision.

MANA 498 INDEPENDENT STUDIES (3)**Independent Studies**

See MANA 497.

MATH (MATHEMATICS)**School of Natural Sciences/Mathematics****MATH 101 SINGLE VARIABLE CALCULUS I (3)****Single Variable Calculus I**

Differentiation, extrema, Newton's method, integration, fundamental theorem of calculus, area, volume, natural logarithm, exponential, arc length, surface area, Simpson's rule, L'Hopital's rule. May substitute MATH 111-112 or take MATH 101 after completing MATH 111.

MATH 102 SINGLE VARIABLE CALCULUS II (3)**Single Variable Calculus II**

Continuation of MATH 101. Includes further techniques of integration, as well as infinite sequences and series, tests for convergence, power series, radius of convergence, polar coordinates, parametric equations, and arc length.

MATH 111 FUND THEOREM OF CALCULUS (3)**Fundamental Theorem of Calculus**

Study of calculus, forming with MATH 112 a slower-paced version of MATH 101/102. Contains less detail in the coverage of infinite series. Students may take MATH 111/112 followed by MATH 102, or MATH 111 followed by MATH 101/102.

MATH 112 CALCULUS AND ITS APPLICATIONS (3)**Calculus and Its Applications**

Continuation of the study of calculus from MATH 111.

(#) = credit hours per semester

MATH 211 ORD DIFFERENTIAL EQUATIONS (3)**Ordinary Differential Equations and Linear Algebra**

Study of ordinary differential equations (e.g., solutions to separable and linear first-order equations and to higher-order linear equations with constant coefficients, the properties of solutions to differential equations, and numerical solution methods) and linear algebra (e.g., vector spaces and solutions to algebraic linear equations, dimension, eigenvalues, and eigenvectors of a matrix), as well as the application of linear algebra to first-order systems of differential equations and the qualitative theory of nonlinear systems and phase portraits. Use of the computers in OwlNet as part of each homework assignment required.

MATH 212 MULTIVARIABLE CALCULUS (3)**Multivariable Calculus**

Study of gradient, divergence, and curl, Lagrange multipliers, multiple integrals, and spherical coordinates, as well as line integrals, conservative vector fields, Green's theorem, Stokes's theorem, and Gauss's theorem. May substitute MATH 221 and 222.

MATH 213 BASIC MATHEMATICAL BIOLOGY (3)**Basic Mathematical Biology**

Study of systems of differential and difference equations, with special attention to modeling of basic biological processes. Phase plane analysis of ordinary differential systems. Qualitive understanding of solutions of differential equations. Credit may not be received for this course and MATH 211. Prerequisite(s): MATH 102 Instructor(s): *Frank Jones*

MATH 221 HONORS CALCULUS III (3)**Honors Calculus III**

This course and MATH 222 include the material of MATH 212 and much more. Topology of R^n , calculus for functions of several variables, linear and multilinear algebra, theory of determinants, inner product spaces, exterior differential calculus, integration on manifolds.

MATH 222 HONORS CALCULUS IV (3)**Honors Calculus IV**

See MATH 221. A student may not receive credit for both MATH 222 and MATH 212.

MATH 321 INTRODUCTION TO ANALYSIS I (3)**Introduction to Analysis I**

A thorough treatment of basic methods of analysis such as metric spaces, compactness, sequences and series of functions. Also further topics in analysis, such as Hilbert spaces, Fourier series, Sturm- Liouville theory. Prerequisite(s): Permission of the department.

MATH 322 INTRODUCTION TO ANALYSIS II (3)**Introduction to Analysis II**

See MATH 321. Includes proofs of the basic results for multivariable calculus (MATH 321 provides proofs for single-variable calculus). Prerequisite(s): MATH 321

MATH 355 LINEAR ALGEBRA (3)**Linear Algebra**

Linear transformations and matrices, solution of linear equations, eigenvalues and eigenvectors, quadratic forms, rational canonical form, Jordan canonical form.

MATH 356 ABSTRACT ALGEBRA (3)**Abstract Algebra**

Groups: normal subgroups, factor groups, Abelian groups. Rings: ideals, Euclidean rings, and unique factorization. Fields: algebraic extensions, finite fields. Students may not take this course and MATH 463.

MATH 365 NUMBER THEORY (3)**Number Theory**

Properties of numbers depending mainly on the notion of divisibility. Continued fractions. Offered alternate years.

MATH 366 GEOMETRY (3)**Geometry**

Topics chosen from Euclidean, spherical, hyperbolic, and projective geometry, with emphasis on the similarities and differences found in various geometries. Isometries and other transformations are studied and used throughout. The history of the development of geometric ideas is discussed. This course is strongly recommended for prospective high school teachers.

MATH 368 TOPICS IN COMBINATORICS (3)**Topics in Combinatorics**

Study of combinatorics and discrete mathematics. Topics that may be covered include graph theory, Ramsey theory, finite geometries, combinatorial enumeration, combinatorial games.

(F) = Fall; (S) = Spring

MATH 381 INTRO PARTIAL DIFF EQUATIONS (3)**Introduction to Partial Differential Equations**

Laplace transform: inverse transform, applications to constant coefficient differential equations. Boundary value problems: Fourier series, Bessel functions, Legendre polynomials.

MATH 382 COMPLEX ANALYSIS (3)**Complex Analysis**

Study of the Cauchy integral theorem, Taylor series, residues, as well as the evaluation of integrals by means of residues, conformal mapping, and application to two-dimensional fluid flow. May not receive credit for this course and MATH 427.

MATH 390 UNDERGRADUATE COLLOQUIUM (1)**Undergraduate Colloquium**

Lectures by undergraduate students on mathematical topics not usually covered in other courses. Presentation of one lecture and attendance at all sessions required.

MATH 401 DIFFERENTIAL GEOMETRY (3)**Differential Geometry**

Study of the differential geometry of curves and surfaces in R^3 . Includes an introduction to the concept of curvature and thorough treatment of the Gauss-Bonnet theorem.

MATH 402 DIFFERENTIAL GEOMETRY (3)**Differential Geometry**

Introduction to Riemannian geometry. Content varies from year to year. Prerequisite(s): MATH 401.

MATH 423 PARTIAL DIFFERENTIAL EQUATIONS (3)**Partial Differential Equations**

Theory of distributions. Wave equation, Laplace's equation, heat equation. Fundamental solutions. Other topics include first order hyperbolic systems, Cauchy-Kowalewski theorem, potential theory, Dirichlet and Neumann problems, integral equations, elliptic equations.

MATH 424 PARTIAL DIFFERENTIAL EQUATIONS (3)**Partial Differential Equations**

More about partial differential equations. Prerequisite(s): MATH 423.

MATH 425 INTEGRATION THEORY (3)**Integration Theory**

Lebesgue theory of measure and integration.

MATH 426 TOPICS IN REAL ANALYSIS (3)**Topics in Real Analysis**

Content varies from year to year. May include Fourier series, harmonic analysis, probability theory, advanced topics in measure theory, ergodic theory, and elliptic integrals. Prerequisite(s): MATH 425.

MATH 427 COMPLEX ANALYSIS (3)**Complex Analysis**

Study of the Cauchy-Riemann equation, power series, Cauchy's integral formula, residue calculus, and conformal mappings. Emphasis on the theory.

MATH 428 TOPICS IN COMPLEX ANALYSIS (3)**Topics in Complex Analysis**

Special topics include Riemann mapping theorem, Runge's Theorem, elliptic function theory, prime number theorem, Riemann surfaces, et al. Prerequisite(s): MATH 382 or MATH 427.

MATH 443 GENERAL TOPOLOGY (3)**General Topology**

Study of basic point set topology. Includes a treatment of cardinality and well ordering, as well as metrization.

MATH 444 GEOMETRIC TOPOLOGY (3)**Geometric Topology**

Introduction to algebraic methods in topology and differential topology. Elementary homotopy theory. Covering spaces.

MATH 445 ALGEBRAIC TOPOLOGY (3)**Algebraic Topology**

Introduction to the theory of homology. Includes simplicial complexes, cell complexes and cellular homology and cohomology, as well as manifolds, and Poincare duality. Prerequisite(s): MATH 444.

(*) = credit hours per semester

MATH 463 ALGEBRA I (3)**Algebra I**

Groups, rings, fields, vector spaces. Matrices, determinants, eigenvalues, canonical forms, multilinear algebra. Structure theorem for finitely generated abelian groups. Galois theory.

MATH 464 ALGEBRA II (3)**Algebra II**

See MATH 463. Prerequisite(s): MATH 463

MATH 465 TOPICS IN ALGEBRA (3)**Topics in Algebra**

Content varies from year to year.

MATH 468 POTPOURRI (3)**Potpourri**

This course deals with miscellaneous special topics not covered in other courses.

MATH 490 SUPERVISED READING (HOURS VARIABLE)**Supervised Reading****MATH 499 MATHEMATICAL SCIENCES (HOURS VARIABLE)****Mathematical Sciences VIGRE Seminar**

Independent Study.

MATH 501 TOPIC DIFFERENTIAL GEOMETRY (3)**Topics in Differential Geometry**

Topic to be announced.

MATH 502 TOPIC DIFFERENTIAL GEOMETRY (3)**Topics in Differential Geometry**

The Atiyah-Singer theorem, secondary invariants, and related topics.

MATH 521 ADV TOPIC: REAL ANALYSIS (3)**Advanced Topics in Real Analysis**

Topic to be announced.

MATH 522 TOPICS IN ANALYSIS (3)**Topics in Analysis**

Topic to be announced.

MATH 523 FUNCTIONAL ANALYSIS (3)**Functional Analysis**

Topic to be announced.

MATH 527 ERGODIC THRY&TOP DYNAMICS (3)**Ergodic Theory and Topological Dynamics**

Topic to be announced.

MATH 528 ERGODIC THRY & TOPOLOGICAL DYN (3)**Ergodic Theory and Topological Dynamics****MATH 541 TOPICS IN TOPOLOGY (3)****Topics in Topology**

Topic to be announced.

MATH 542 TOPICS IN ADVANCED TOPOLOGY (3)**Topics in Advanced Topology**

Topic to be announced.

MATH 590 CURRENT MATHEMATICS SEMINAR (1)**Current Mathematics Seminar**

Lectures on topics of recent research in mathematics delivered by mathematics graduate students and faculty.

MATH 591 GRADUATE TEACHING SEMINAR (1)**Graduate Teaching Seminar**

Discussion on teaching issues and practice lectures by participants as preparation for classroom teaching of mathematics.

(F) = Fall; (S) = Spring

MATH 699 MATHEMATICAL SCIENCES (HOURS VARIABLE)**Mathematical Sciences VIGRE Seminar**

Independent Study.

MATH 800 THESIS AND RESEARCH (HOURS VARIABLE)**Thesis and Research****MDST (MEDIEVAL STUDIES)**

School of Humanities/Medieval Studies**MDST 101 ELEMENTARY LATIN I (3)****Elementary Latin I**

Study of the fundamentals of Latin grammar with emphasis on acquisition of reading skills. Also offered as LATI 101. Instructor(s): *Wallace*

MDST 102 ELEMENTARY LATIN II (3)**Elementary Latin II**

Continuation of MDST 101. Also offered as LATI 102. Instructor(s): *Wallace*

MDST 104 CASE STU IN ANCNT & MED ARCH (3)**MDST 108 LATE MEDIEV & RENNAIS CULTURE (3)****Art In Context: Late Medieval and Renaissance Culture**

This course will be concerned with art, architecture, and history of the late Middle Ages and Renaissance. We will employ historical texts, literature, and illustrations of works of art, showing how historical documents and sources can illuminate the cultural context of art and architecture. Also offered as HART 240 and HUMA 108. Instructor(s): *Manca; Neagley*

MDST 111 INTRO TO HIST OF WESTERN ART I (3)**Introduction to the History of Western Art I: Prehistoric To Gothic**

A survey of painting, sculpture, and architecture from the Paleolithic period through the 15th century. Also offered as HART 101. Instructor(s): *Staff*

MDST 126 LEGEND OF KING ARTHUR (3)**The Legend of King Arthur in the Middle Ages (Freshman Seminar)**

In the 1100s people began writing down stories of Arthur, Guinevere, Merlin, and the Knights of the round table using sophisticated techniques of literary composition. Today, these stories count among the great writings of Europe. This course examines the spectrum of medieval stories and histories of Arthur that arose in England, France, and Germany from the beginning to the age of printing, plus some recent revivals. Also offered as GERM 126 and FSEM 126.

MDST 201 HISTORY OF PHILOSOPHY I (3)**History of Philosophy I**

Survey of the major philosophers and philosophical systems of ancient Greece, from Parmenides to the Stoics. Also offered as PHIL 201 and CLAS 201. Instructor(s): *Morrison*

MDST 202 INTRO TO MEDIEVAL CIVILIZATION (3)**Introduction to Medieval Civilization: The Early Middle Ages**

Introduction to European culture of the "Dark Ages," from the fall of Rome to the end of Viking invasions. Includes the use of historical, literary, artistic, and archaeological sources to trace changes in European material, spiritual, and cultural life between 300-1000 A.D. Also offered as HIST 202. Instructor(s): *Staff*

MDST 203 INTRO TO MEDIEVAL CIVILIZATION (3)**Introduction to Medieval Civilization II: The High Middle Ages**

European culture from the year 1000 to the discovery of the Americas, which encompasses the Crusades, the "discovery of the individual," chivalry and chivalric literature, the Black Death, and the beginnings of the Age of Exploration. Also offered as HIST 203. Instructor(s): *Haverkamp*

MDST 211 INTERMEDIATE LATIN I: PROSE (3)**Intermediate Latin I: Prose**

Review of grammar and readings in Latin prose. Also offered as LATI 201. Instructor(s): *Wallace*

MDST 212 INTERMEDIATE LATIN II (3)**Intermediate Latin II**

Readings in Vergil's Aeneid. Also offered as LATI 202. Instructor(s): *Wallace*

(*) = credit hours per semester

MDST 222 MEDIEVAL & RENAISSANCE ERAS (3)**Medieval and Renaissance Eras**

Introduction to the study of Western music history, with emphasis on music before 1600. Score reading ability required. Also offered as MUSI 222. Prerequisite(s): MUSI 211 or MUSI 317 Instructor(s): *Meconi*

MDST 223 MEDIEVAL EMPIRES (3)**Medieval Empires**

Course will explore the political, social, and economic conceptions of the Byzantine and Holy Roman Empires. Examining the self-perceptions of the Empire; the role of Roman tradition and languages; notions of (geographical) borders and nations; different constitutions in political representation, administrations, and economic organization. Also offered as HIST 223. Instructor(s): *Haverkamp*

MDST 257 JES & CHRSTNS MEDIEV EUROPE (3)**Jews and Christians in Medieval Europe**

Course will study relationships between Jewish and Christian communities within the context of Christian Europe. Topics will include settlement and demography; economics; legal status; hostility against Jews; family and the position of women; communal organizations; social diversity; and intellectual and spiritual achievements. Offered with additional work as MDST 357. Also offered as HIST 257. Instructor(s): *Haverkamp*

MDST 281 HISTORY OF THE MIDDLE EAST (3)**The Middle East from the Prophet Muhammad to Muhammad Ali**

Introduction to the Middle East from the rise of Islam to the beginning of the 19th century. Topics include conquests and classical Islamic states, Arabization, Jewish and Christian communities, impact of Turkic peoples, and the Ottoman Empire, with emphasis on social, cultural, and political trends which shaped the region's history. Also offered as HIST 281. Instructor(s): *Sanders*

MDST 300 MEDIEVAL WOMEN WRITERS (3)**Medieval Women Writers**

This course examines significant medieval European women authors from the 10th–17th centuries, from Italy and Germany to France, England, Austria, and Spain. Using various techniques and media to access works, we will combine close reading with a focus on intersexuality. Also offered as ENGL 311 and WGST 300. Instructor(s): *Chance*

MDST 301 ANCIENT & MEDIEVAL PHILOSOPHY (3)**Ancient and Medieval Philosophy**

Topics in history of philosophy from the fourth century B.C. through the fourteenth. Also offered as PHIL 301. Instructor(s): *Morrison*

MDST 310 DANTE (3)**Dante**

A reading of Dante's *Divine Comedy*, with attention to the meaning of words, images, symbols, figures, structures, the meaning of the book, with reference to the political and religious controversies of the time. Also offered as ENGL 310. Instructor(s): *Chance*

MDST 311 OLD ENGLISH (3)**Old English**

This course will be a combination of Old English Grammar and readings in Old English. Also offered as ENGL 324 and LING 312. Instructor(s): *Mitchell*

MDST 315 INTRO TO MEDIEVAL CULTURES (3)**Introduction to Medieval Cultures**

Interdisciplinary course exploring the literature, art, philosophy, history, music, and science of the Middle Ages, with films by Pasolini, Bergman, Einstein, Annaud, Vigne, and others, and highlighted by a medieval banquet. Also offered as ENGL 315. Webpage: <http://www.ruf.rice.edu/~jchance/cult.html> Instructor(s): *Chance*

MDST 317 ARTHURIAN LITERATURE (3)**Arthurian Literature**

A survey of the origins and development of the Arthurian legend from the earliest chronicles in the sixth century and later medieval French, Welsh, Irish, and English Arthurian poems to modern adaptations of Arthurian material, including films. Please consult <http://www.english.rice.edu> for additional information. Also offered as ENGL 317 and WGST 301. Instructor(s): *Chance*

MDST 318 J.R.R. TOLKIEN (3)**J.R.R. Tolkien**

This course will trace the tension between the exile (wraecca) and the community; otherness and heroism; identity and marginalization; and revenge and forgiveness. Also offered as ENGL 318. Instructor(s): *Chance*

(F) = Fall; (S) = Spring

MDST 321 DIR RDGS MEDIEVAL HISTORY (4)**Directed Readings in Medieval History**

Also offered as HIST 521. Instructor(s): *Staff*

MDST 322 DIR RDGS MEDIEVAL HISTORY (4)**Directed Readings in Medieval History**

Instructor(s): *Staff*

MDST 323 MEDIEVAL EMPIRES (3)**Medieval Empires**

Enriched version of MDST 223. Also offered as HIST 323. May not receive credit for both MDST 223 and MDST 323. Instructor(s): *Haverkamp*

MDST 330 EARLY MEDIEVAL ART (3)**Early Medieval Art from 5th Century to the Romanesque Period**

Study of medieval art, with emphasis in part one on the art and architecture produced in Europe during the Dark Ages (e.g. the work of the Visigoths, Celts, Anglo-Saxons, Merovingians, Carolingians, and Ottonians); and in part 2 on the major revival of art and architecture in the medieval monasteries of the Romanesque period. Also offered as HART 330. Instructor(s): *Neagley*

MDST 331 GOTH ART & ARCH N. EUR-1140-1300 (3)**Gothic Art and Architecture in Northern Europe, 1140-1300: The Age of Cathedrals**

Examination of the full array of sacred and secular art and architecture produced in the early and high gothic periods in northern Europe. Includes cathedral architecture, sculpture, stained glass, manuscripts, and metalwork studied in relationship to the expansion of royal and Episcopal power. Also offered as HART 331. Instructor(s): *Neagley*

MDST 332 LATE GOTH ART & ARCH 1300-1500 (3)**Late Gothic Art and Architecture in Northern Europe, 1300-1500**

Examination of art and architecture produced in the late gothic period within three distinct settings-the court, the city, and the church. Includes private, public, and religious life as expressed in the objects, architecture, and decoration of the castle and palace, the house, city hall and hospital, and the chapel and parish church. Also offered as HART 332. Instructor(s): *Neagley*

MDST 348 SUBJECTIVITY IN MOD/POST- ART (3)**MDST 357 JEWS & CHRISTIANS-MEDIEVAL EUR (3)****Jews and Christians in Medieval Europe**

Enriched version of MDST 257. May not receive credit for both MDST 257 and HIST 357. Also offered as HIST 357. Instructor(s): *Haverkamp*

MDST 358 EUROPEAN INTELLECTUAL HISTORY (3)**European Intellectual History from Augustine to Descartes**

This course will survey key developments in Western thought (political theory, literature, philosophy, theology, and art) from the consolidation and institutionalization of Christian doctrine in the fourth and fifth centuries through the beginning of the "Scientific Revolution" in the 17th century. Also offered as HIST 358. Instructor(s): *Quillen*

MDST 368 MYTHOLOGIES (3)**Mythologies**

This course introduces students to a variety of work mythologies and mythmakers, from the beginnings to the modern period. Included mythologies: Babylonian, Sumerian, Hindu, Egyptian, Greek, Roman, Irish, Welsh, Old Norse, Anglo-Saxon, Finnish, Mayan, Hopi, and modern (Borges, Philip Glass). Also offered as ENGL 309 and WGST 368. Instructor(s): *Chance*

MDST 382 CLASSICAL ISLAMIC CULTURE (3)**Classical Islamic Culture**

An introduction to the cultures and religions of the Islamic world from the 9th through the 14th centuries. Topics include Islamic law and theology, philosophy, ritual, Islamic science and medicine, classical Arabic literature, the impact of Arabo-Islamic culture on Jewish and Christian cultures of the Islamic world. Also offered as HIST 382. Instructor(s): *Sanders*

MDST 385 CHRISTIANS&JEWS-MEDIEVAL ISLAM (3)**Christians and Jews in the Medieval Islamic World**

Examination of Christian and Jewish communities in the Islamic world from the rise of Islam to the Ottoman Empire. Includes the legal status of dhimmis (protected peoples), social and economic life, communal organization, interplay of religious laws, and political authority in these communities, as well as discussion of their modern historiography, a comparative study of Jewish communities in Christendom and Islam, and discussion of Muslim communities living under Christian rule in the Middle Ages. Also offered as HIST 437.

(#) = credit hours per semester

MDST 410 LIT & HIST IMAGE MEDIEVAL WOMAN (3)**Literary and Historical Images of the Medieval Woman**

Undergraduate version of MDST 411. Comparison and contrast of the presentation of the medieval woman in literature with extant evidence of historical women from contemporary documents and records. Also offered as FREN 410 and WGST 410. Pre-requisite(s): FREN 311 or 312 or AP credit or permission of instructor. Instructor(s): *Nelson-Campbell*.

MDST 411 LIT & HIST IMAGE MEDIEVAL WOMAN (3)**The Literary and Historical Image of the Medieval Woman**

Comparison and contrast of the presentation of the medieval woman in literature with extant evidence of historical women from contemporary documents and records. Also offered as FREN 510. Pre-requisite(s): FREN 311 or 312 or AP credit or permission of instructor. Instructor(s): *Nelson-Campbell*.

MDST 414 MEDIEVAL SAINTS & SINNERS (3)**Literature and Culture of the Middle Ages: Saints and Sinners**

Study of medieval French works that depict saints and sinners with the goal of assessing the cultural structure that sets the limits of these labels. Also offered as FREN 414. Pre-requisite(s): FREN 311 or 312 or AP credit or permission of instructor. Instructor(s): *Nelson-Campbell*.

MDST 425 COURTLY LOVE MEDV FRANCE (ENRCH) (3)**Courtly Love in Medieval France**

Undergraduate version of FREN 515. Study of the Occitan and Old French poetry that served as the source of the kind of love that came to be called "armour courtois" in the 19th century. Also offered as FREN 415. Pre-requisite(s): FREN 311 or 312 or AP credit or permission of instructor. Instructor(s): *Nelson-Campbell*.

MDST 429 MUSIC OF THE MIDDLE AGES (3)**Music of the Middle Ages**

A study of the major musical styles and composers of western art music before 1400 and their historical, cultural, and sociological contexts. Offered every other year. Also offered as MUSI 429. Instructor(s): *Meconi*

MDST 436 LIT & CULTURE MID AGES (3)**Literature and Culture of the Middle Ages: King Arthur**

Examination of the origins of the legend of King Arthur and reasons for its popularity, particularly in literature of the French Middle Ages, but also in other medieval literatures of Western Europe. Includes discussion of the legend's influence in diverse areas even in modern times. Also offered as FREN 416. Prerequisite(s): FREN 311 or 312, AP credit or permission of instructor. Instructor(s): *Nelson-Campbell*

MDST 438 MEDIEVAL ISLAM WOMEN/GENDER (3)**Women and Gender in the Medieval Islamic World**

Examination of some features of the legal position and social realities of men and women in the Islamic world, with emphasis on how boundaries of gender have traditionally been drawn. Includes the family and sexual ethics, the harem, polygyny, divorce, and eunuchs (who played an important role in both the military and in certain religious institutions). Also offered as HIST 438 and WGST 455. Limited enrollment Instructor(s): *Sanders*

MDST 440 JAN VAN EYCK (3)**Jan Van Eyck: Problems of Interpretation**

Seminar and in-depth research on the art and historiography of the early Netherlandish painter Jan Van Eyck. Also offered as HART 440. Instructor(s): *Neagley*

MDST 441 HILDEGARD OF BINGEN (3)**Hildegard of Bingen**

The course examines the life and works of 12th century polymath Hildegard of Bingen, including her achievements in music, poetry, religious thought, medicine, natural science, and linguistics. Also offered as MUSI 724 and WGST 724. Enrollment limited to 15. Instructor(s): *Meconi*

MDST 444 MEMORY IN MIDDLE AGES (3)**Memory and Commemorization in the Middle Ages**

Memory and commemoration are the intentions, attitudes, acts, and media that should prevent oblivion of individuals and communities (beyond death). Possessing universal dimensions that go back to antiquity in to the present, back to antiquity and are influential up to the present. they are often driven into individual remembrance, the institutional realm of politics, or the secluded world of museums. Also offered as HIST 444. Instructor(s): *Haverkamp*

MDST 447 THE AGE OF CRUSADES (3)**The Age of Crusades**

Seminar will discuss characteristics of the Crusades against Muslims, Jews, pagans, Mongols, heretics, schismatics, and political enemies and explore to what extent the concepts of "holy war" and new expressions of religious beliefs impacted fundamentalism creating new possibilities for globalization in medieval Europe. Discussions will include primary and secondary sources. Also offered as HIST 447. Limited enrollment. Instructor(s): *Haverkamp*

(F) = Fall; (S) = Spring

MDST 451 BOSCH & BRUEGEL (3)**Bosch and Bruegel**

The Sacred and Profane in the Paintings of Bosch and Bruegel. The obscene, the grotesque, the humorous, and the bizarre were frequently depicted alongside sacred religious scenes in the margins of late Medieval manuscripts or the periphery of Gothic cathedral facade sculpture. By the sixteenth century, this fantastic world had migrated to the center of religious paintings, especially in the work of Hieronymus Bosch and Pieter Bruegel the Elder. This course will examine the juxtapositions and the complex meanings of sacred and profane imagery within the context of sixteenth-century religious and social life. Also offered as HART 441. Instructor(s): *Neagley*

MDST 456 COLLEGIUM (3)**Collegium**

Performance of music up to the early 17th century. Permission of instructor. Does not count as chamber music. Also offered as MUSI 436. Prerequisite(s): Permission of the instructor. Instructor(s): *Meconi*

MDST 481 SEM ANC & MEDIEVAL PHILOSOPHY (3)**Seminar in Ancient and Medieval Philosophy**

Also offered as PHIL 501. Instructor(s): *Morrison*

MDST 486 ILLUMINATED MUSIC MANUSCRIPTS (3)**Illuminated Music Manuscripts**

The study of illuminated music manuscripts from the Middle Ages through the mid-sixteenth century, with discussion of changed in production, design, decoration, and function throughout this period. Non-music manuscripts will also be examined in order to place music collections in the context of contemporary manuscript culture. Enrollment limited to 12. Also offered as MUSI 726. Instructor(s): *Meconi*

MDST 488 TOPICS IN MEDIEVAL HISTORY (3)**Topics in Medieval History**

Research seminar on selected issues, subject or themes in medieval history. Topics vary. Also offered as HIST 488. Instructor(s): *Staff*

MECH (MECHANICAL ENGINEERING)**School of Engineering/Mechanical Engineer and Materials Science****MECH 200 CLASSICAL THERMODYNAMICS (3)****Classical Thermodynamics**

Explication of the fundamental laws of classical thermodynamics and deductions from them. Includes applications with particular attention to pure substances. Required for mechanical engineering majors. Prerequisite(s): PHYS 101 and 102. Instructor(s): *Chapman*

MECH 211 ENGINEERING MECHANICS (3)**Engineering Mechanics**

The study equilibrium of static systems, the dynamics of a particle and particle systems, and rigid-body dynamics. Includes elements of vibrational analysis. Required for mechanical engineering and materials science and engineering majors. Also offered as CEVE 211. Prerequisite(s): PHYS 101 and MATH 101/102. Instructor(s): *Staff*

MECH 308 SENIOR DESIGN JUNIOR OBSERVERS (1)**Senior Design Junior Observers**

No description. Instructor(s): *Staff*

MECH 311 MECHANICS-DEFOR SOLIDS (3)**Mechanics of Deformable Solids**

Analysis of stress and the deformation of solids with applications to beams, circular shafts, and columns. Required for mechanical engineering majors. Prerequisite(s): MECH 211. Instructor(s): *Carroll*

MECH 331 JUNIOR LABORATORY I (1)**Junior Laboratory I**

Instruction in static and impact testing of engineering materials. Includes beam deflection and shear center experiments, as well as the application and testing of strain gauges. Required for mechanical engineering majors in B.S. program. Instructor(s): *Staff*

MECH 332 JUNIOR LABORATORY II (1)**Junior Laboratory II**

Instruction in fluid mechanics and thermodynamics. Students work in groups and perform classic experiments in fluid flow with emphasis on boundary-layer theory, flow separation, laminar to turbulent transition, and Bernoulli equation. This laboratory course provides experimental support to MECH 372. Required course for mechanical engineering majors in B.S. program. Lab schedules will be determined at Pre-registration. Section enrollment is limited to 4. If a section is full and you need a specific section, please contact the instructor at x2427 or dmcs@rice.edu. Organizational meeting is held the first week of classes; announcements will be posted in MEMS department. Instructor(s): *McStravick*

(*) = credit hours per semester

MECH 340 INDUSTRIAL PROCESS LAB (1)**Industrial Process Lab**

Practical experience in, and observation of, selected industrial processes. Must sign up in department office for sections. Open only to mechanical engineering majors. Required for mechanical engineering majors in B.S. program. Instructor(s): *Gesenbues*

MECH 343 MODELING OF DYNAMICS SYSTEMS (4)**Modeling of Dynamics Systems**

Energy-based modeling of dynamic systems. The focus of the course will be mechanical systems and electrical circuits, but will also involve fluid, thermal and other domains. Various techniques such as signal flow graphs and Bond Graphs will be introduced. Modeling and simulation of systems via Matlab, and an introduction to systems theory. Includes laboratory assignments. Required for mechanical engineering majors in B.S. program. Prerequisite(s): MECH 211, MATH 211, MECH 200. Co-requisite(s): CAAM 335 Instructor(s): *O'Malley*

MECH 371 FLUID MECHANICS I (3)**Fluid Mechanics I**

Introduction to fluid statics and dynamics. Includes the development of the fundamental equations of fluid mechanics and their application to problems of engineering interest. Required for mechanical engineering majors in B.S. program. Prerequisite(s): MECH 200 and 211 and MATH 212. Instructor(s): *Meade*

MECH 372 FLUID MECHANICS II (3)**Fluid Mechanics II**

Continuation of MECH 371. The fundamental principles of fluid mechanics are applied to the study of: potential flow, laminar and turbulent pipe and boundary-layer flow, flow separation, airfoil theory, compressible flow, and turbomachinery. Required for mechanical engineering majors in B.S. program. Prerequisite(s): MECH 371 Instructor(s): *Meade*

MECH 373 ACOUSTICS (3)**Acoustics**

Basics of technical acoustics, including generation, propagation, reception and reproduction of sound, speech and hearing, musical and architectural acoustics, and noise control. Offered alternate years. Instructor(s): *Carroll*

MECH 380 INTRO TO MECHANICAL EFFECTS (3)**Intro to Mechanical Effects in Tissues**

Development of a general background in physiology and in advanced mechanics for applications in medicine. Includes bone mechanics in remodeling, cartilage and ligament mechanics, and muscle mechanics, as well as an on paper design project on a subject selected by students. Prerequisite(s): MECH 211 and 311 or CEVE 300. Instructor(s): *Staff*

MECH 383 BIOMED INSTRUMENT & MEASURE TECHN (3)**Introduction to Biomedical Instrumentation and Measurement Techniques**

Review of basic sensors, measurement principles and analog electronics using operational amplifiers. Includes design problems using operational amplifier circuits (e.g. instrumentation and isolation amplifiers, comparators, timer circuits). Introduction to development of virtual instruments (VIs) using LabView. Discussion of micro and macro-biopotential electrodes, cell cytometry, the measurement of blood pressure, blood flow, and heart sounds, temperature, and the principles of electrical safety (e.g. micro and macro-shock hazards in the clinical environment). Includes discussion of pulmonary instrumentation and medical applications of ultrasound. Two lab exercises and a term project required. Prerequisite(s): ELEC 381 or consent of instructors. Instructor(s): *Anvari*

MECH 401 MECHANICAL DESIGN APPLICATIONS (3)**Mechanical Design Applications**

Applications of the principles of mechanical design to the analysis and design of machine elements. Required for mechanical engineering majors in B.S. program. Prerequisite(s): MECH 311 or CEVE 300 Instructor(s): *O'Malley, McStravick*

MECH 403 COMPUTER AIDED DESIGN (3)**Computer Aided Design**

Investigation of the integration of the computer into the area of design. Includes such subjects as optimization, simulation, finite elements, and expert systems. Required for mechanical engineering majors in B.S. program. Prerequisite(s): CAAM 210. Instructor(s): *Staff*

MECH 404 SENIOR DESIGN PROJECT (4)**Senior Design Project**

Project-based course with group or independent design project relating to mechanical engineering topics. Required for mechanical engineering majors in B.S. program. May substitute MECH 407/408. Instructor(s): *McStravick*

(F) = Fall; (S) = Spring

MECH 407 MECHANICAL DESIGN PROJECT I (4)**Mechanical Design Project I**

An interdisciplinary capstone design experience in mechanical engineering. This course provides an opportunity for students to apply knowledge and skills acquired in previous courses to the solution of a realistic engineering problem. Teams of students will specify, design, and build a system to meet a prescribed set of requirements. The topics covered in this course will include design methodology, effective teamwork, project management, documentation, and presentation skills. Must complete MECH 408 to receive credit for MECH 407. Also offered as ELEC 491/492. Instructor(s): *Staff*

MECH 408 MECHANICAL DESIGN PROJECT II (3)**Mechanical Design Project II**

An interdisciplinary capstone design experience in mechanical engineering. This course provides an opportunity for students to apply knowledge and skills acquired in previous courses to the solution of a realistic engineering problem. Teams of students will specify, design, and build a system to meet a prescribed set of requirements. The topics covered in this course will include design methodology, effective teamwork, project management, documentation, and presentation skills. Must complete MECH 408 to receive credit for MECH 407. Also offered as ELEC 491 and 492. Instructor(s): *Staff*

MECH 411 DYNAMICS & CONTRL OF MECH SYS (3)**Dynamic and Control of Mechanical Systems**

The application of the principles of kinematics, dynamics and systems and control theory to the design and analysis of controlled mechanical systems. Kinematics and Newtonian dynamics of particles and rigid bodies, elements of analytical dynamics, system analysis, stability, and simulation of dynamical behavior, control of mechanical systems. Demonstrations and laboratory examples. Prerequisite(s): MECH 343, MECH 420 or equivalent. Instructor(s): *Ghorbel*

MECH 412 VIBRATIONS (3)**Vibrations**

Analysis of discrete and continuous linear vibrating systems, with emphasis on multi-degree-of-freedom systems. Includes approximate methods. Required for mechanical engineering majors in B.S. program. Prerequisite(s): MECH 343 Instructor(s): *Spanos*

MECH 417 FINITE ELEMENT ANALYSIS (3)**Finite Element Analysis**

An introduction to finite element analysis by Galerkin's method and the method of least squares as applied to both ordinary and partial differential equations common in engineering applications. Element interpolations, numerical integration, computational considerations for efficient solution and post-processing methods. Application of educational and commercial codes to heat transfer and stress analysis. Also offered as CEVE 417. Prerequisite(s): MATH 212, CAAM 210 or 211. Instructor(s): *Akin*

MECH 420 FUNDAMENTALS OF CONTROL SYST (3)**Fundamentals of Control Systems**

Linear systems and the fundamental principles of classical feedback control, state variable analysis of linear dynamic systems, stability of linear control systems, time-domain analysis and control of linear systems, root-locus analysis and design and pole-zero synthesis, frequency domain techniques for the analysis and design of control systems. Required for mechanical engineering majors in B.S. program. Also listed as ELEC 436. Prerequisite(s): MECH 343 and CAAM 335. Instructor(s): *Ghorbel*

MECH 431 SENIOR LABORATORY I (1)**Senior Laboratory I**

Laboratory instruction in heat transfer, thermodynamics, and engine cycles. Students work in small groups doing experiments with emphasis on applied thermodynamics and vibration analysis. Required for mechanical engineering majors in B.S. program. See online registration for sections. Instructor(s): *McStravik*

MECH 435 ELECTROMECH DEVICES&SYSTEMS (3)**Electromechanical Devices and Systems**

Introduction to the physical and engineering aspects of electromechanical sensors and actuators. Includes underlying physical phenomena, practical devices, electrical and mechanical interfacing, and control of electromechanical systems. Also offered as ELEC 435. Prerequisite(s): ELEC 241, 242, or 243 Instructor(s): *Wise*

MECH 454 FINITE ELEMNT MTHDS FLUID MECH (3)**Finite Element of Methods in Fluid Mechanics**

Fundamental concepts of finite element methods in fluid mechanics, including spatial discretization and numerical integration in multidimensions, time-integration, and solution of nonlinear ordinary differential equation systems. Advanced numerical stabilization techniques designed for fluid mechanics problems. Strategies for solution of complex, real-world problems. Topics in large-scale computing, parallel processing, and visualization. Also offered as CEVE 454 and BIOE 454. Instructor(s): *Tezduyar*

(#) = credit hours per semester

MECH 471 APPLICATIONS OF THERMODYNAMICS (3)**Applications of Thermodynamics**

Applications of thermodynamics to various systems of interest in mechanical engineering, with emphasis on energy conversion, refrigeration, and psychrometrics. Prerequisite(s): MECH 200 Instructor(s): *Chapman*

MECH 472 THERMAL SYSTEMS DESIGN (3)**Thermal Systems Design**

Design and synthesis of systems based on applications of thermodynamics, fluid mechanics, heat transfer, economics, and optimization theories. Prerequisite(s): MECH 200, 371, 372, 471, and 481. Instructor(s): *Staff*

MECH 481 HEAT TRANSFER (3)**Heat Transfer**

Study of the general principles of heat transfer by conduction, convection, and radiation. Includes their application to problems of engineering practice. Required for mechanical engineering majors. Instructor(s): *Bayazitoglu*

MECH 482 INTERMEDIATE HEAT TRANSFER (3)**Intermediate Heat Transfer**

Continuation of MECH 481. Includes applications to various problems in mechanical engineering. Prerequisite(s): MECH 481 Instructor(s): *Bayazitoglu*

MECH 483 BIOMED INSTRUMENT&MESURET TECH (3)**Intro of Biomedical Instrumen and Measurment Techniques**

Review of basic sensors and measurement principles. Includes design problems using operational amplifier circuits (e.g., instrumentation and isolation amplifiers, comparators, timer circuits). Introduction to development of virtual instruments (VIs) using LabView. Discussion of micro- and macro-biopotentia electrodes, cell cytometry, the measurement of blood pressure, blood flow, and heart sounds, temperature, and the principles of electrical safety (e.g., micro- and macro-shock hazards in the clinical environment). Includes discussion of pulmonary instrumentation and medical applications of ultrasound. Two lab exercises and a term project required. Also offered as ELEC 483 and BIOE 483. Prerequisite(s): ELEC 481 or permission of instructor. Instructor(s): *Ghorbel, Clark*

MECH 485 BIOMECHANICS OF HUMAN MOVEMENT (3)**Biomechanics of Human Movement**

Application of basic mechanics to the study of human movement. Includes joint mechanics and locomotion analysis, Lagrange and Newton-Euler methods, and basic feedback control, signal analysis, and data acquisition techniques. Prerequisite(s): MECH 211 Instructor(s): *Staff*

MECH 488 DESIGN OF MECHATRONIC SYSTEMS (3)**Design of Mechatronic Systems**

Analog electronic design for purposes of controlling electromechanical systems, including electromechanical sensors and actuators, analog electronic design of filters, state space and classical controllers, and transistor-based servo amplifiers and high voltage amplifiers. Implementation of digital controllers. Significant laboratory component with design and fabrication of circuits to control electromechanical systems. Prerequisite(s): MECH 343, ELEC 241 Co-requisite(s): MECH 420.

MECH 496 ROBOTICS LABORATORY (1)**Robotics Laboratory**

Lab for computer vision experiments, the programming of a mobile robot and industrial type PUMA robot, and operation of a Computer Numerical Control (CNC) mill and industrial-size CNC lathe, as well as projects. Co-requisite(s): MECH 498. Also offered as ELEC 496. Instructor(s): *Staff*

MECH 498 INTRODUCTION TO ROBOTICS (3)**Introduction to Robotics**

Introduction to the kinematics, dynamics, and control of robot manipulators and to applications of artificial intelligence and computer vision in robotics. Also offered as ELEC 498 and COMP 498. Instructor(s): *O'Malley*

MECH 501 DYNAMICS & CONTRL OF MECH SYS (3)**Dynamics and Control of Mechanical Systems**

Graduate version of MECH 411. Offered concurrently with MECH 411. Instructor(s): *Ghorbel*

MECH 502 VIBRATIONS (3)**Vibrations**

Graduate level version of MECH 412. Term project is required. Offered concurrently with MECH 412. Instructor(s): *Spanes*

MECH 503 COMPUTER-AIDED DESIGN (3)**Computer-Aided Design**

Graduate version of MECH 403. Additional work required. Prerequisite(s): CAAM 211 Instructor(s): *Staff*

(F) = Fall; (S) = Spring

MECH 507 NONLINEAR DYNAM SYSTEM ANALY I (3)**Nonlinear Dynamics Systems Analysis I**

Introduction to analytical methods describing functions (e.g., singular point and phase plane analysis) and to stability analysis via Lyapunov functions, digital computer simulation methods, parameter estimation, and sensitivity analysis. Includes an introduction to the chaotic behavior of nonlinear dynamic systems. Also offered as ELEC 507. Instructor(s): *Clark*

MECH 508 NONLINEAR SYSTEMS ANALYSIS II (3)**Nonlinear Systems Analysis II**

Review of fundamental properties of nonlinear systems. Nonlinear ordinary differential equations: Existence and uniqueness of solution. Lyapunov Stability: Stability definitions, Lyapunov's direct method, invariance theory, stability of linear systems, Lyapunov's linearization method, converse theorems. Input-Output stability: Small gain theorem, passivity theorem. Case studies: Application to control problems including nonlinear and adaptive control and robotics. Also offered as ELEC 508. Instructor(s): *Ghorbel*

MECH 510 ELASTO DYNAMICS (3)**Elasto Dynamics**

Propagation of waves in linearly-elastic strings, fluids, and solids. Surface waves, wave reflection and refraction at interfaces. Wave propagation in waveguides. Steady-state and transient half-space problems. Scattering of waves by cracks. Instructor(s): *Staff*

MECH 511 CONTINUUM MECHANICS I (3)**Continuum Mechanics I**

Exploration of concepts and general principles common to all branches of solid and fluid mechanics. Includes non-Newtonian fluid mechanics and nonlinear elasticity. Instructor(s): *Carroll*

MECH 513 THEORY OF ELASTICITY (3)**Theory of Elasticity**

Advanced topics in the linear and nonlinear theory of elasticity. Also offered as CEVE 513. Instructor(s): *Landis*

MECH 514 NONLINEAR ELASTICITY (3)**Nonlinear Elasticity**

Development of the theory of finite elastic deformation and motion. Some exact solutions and methods of approximation. Instructor(s): *Carroll*

MECH 516 THEORY OF PLASTICITY (3)**Theory of Plasticity**

Mathematical theory of plasticity. Thermodynamics of irreversible processes as applied to plasticity. Elasto-plastic boundary value problems. Slip-line theory. General principles. Single crystal plasticity. Dislocation dynamic-based plasticity. Prerequisite(s): MECH 511 or MECH 513 or permission of the instructor. Instructor(s): *Landis*

MECH 517 FINITE ELEMENT METHODS (3)**Finite Element Methods**

Graduate version of MECH 417. An introduction to Galerkin's method and the method of least squares applied to partial differential equations. Computational considerations for efficient interpolation, numerical integration, solution and post-processing methods. Error estimation and adaptive finite element analysis. Requires programming for a student project and a supporting literature survey. Prerequisite(s): Graduate student status. Instructor(s): *Akin*

MECH 518 THEORETICAL FRACTURE MECHANICS (3)**Theoretical Fracture Mechanics**

Topics on the theory of linear and nonlinear fracture mechanics. Energetics of fracture, the J-integral, stress and strain fields near crack tips, R-curve behavior. Also listed as MSC1 609. Instructor(s): *Landis*

MECH 523 PROB STRUCTURAL DYNAMICS (3)**Probabilistic Structural Dynamics**

Introduction to probability theory and random processes. Includes the dynamic analysis of linear and nonlinear structural systems subjected to stationary and nonstationary random excitations reliability studies related to first excursion and fatigue failures, and applications to earthquake engineering, offshore engineering, and wind engineering. Also offered as CEVE 523 Prerequisite(s): MECH 412 or CEVE 521 and basic knowledge of probability theory. Instructor(s): *Staff*

MECH 524 ENGR MATH & NUMERICAL METHODS (3)**Engineering Mathematical and Numerical Methods**

Correspondence between quadratic minimization problems and linear equation systems for discrete and continuous physical systems, calculus of variations, elements of solid and fluid mechanics, Green's functions, conformal mapping, elements of approximation theory and convergence analysis of finite element methods. Instructor(s): *Staff*

(#) = credit hours per semester

MECH 527 COMPUT MTHDS STRUCT MECHANICS (3)**Computational Methods in Structural Mechanics**

Introduction to differential and integral formulations, variational principles, weighted residuals, and principle of virtual work. Simple boundary, initial, and eigenvalue problems. Finite element, boundary element, and finite difference methods for structural mechanics. Study of nonlinearities. Computational methods for geometric and material nonlinear analysis. Applications to static and dynamic problems. Programming and use of computer software. Also offered as CEVE 527. Instructor(s): *Nagarajaiah*

MECH 537 DESIGN & CONTROL COMP NETWORKS (3)**Design and Control of Computer Networks**

Graduate-level introduction to fundamental concepts for the design and control of computer networks. Topics include resource allocation, routing, traffic modeling, congestion control, service disciplines, and multicasting. Concepts are applied to state-of-the-art systems and protocols such as current and future Internet architectures. Also offered as ELEC 537. Instructor(s): *Staff*

MECH 538 EXPERT SYSTEMS - ROBOTICS (3)**Expert Systems-Robotics**

Introduction to expert systems and fuzzy logic control. Includes robotics and automation. Instructor(s): *Staff*

MECH 554 FINITE ELEMNT MTHDS FLUID MECH (3)**Finite Element Methods in Fluid Mechanics**

Graduate version of MECH 454. Additional work required. Also offered as ENVI 554, CEVE 554, and BIOE 554. Prerequisite(s): MECH 371 and MECH 517 or permission of the instructor. Instructor(s): *Tezduyar*

MECH 563 ENGI APPROACH TO MATH PROGRAM (3)**ENGI Approach to Math Program**

Study of the minimization of functions of variables that are either unconstrained, subject to equality constraints, subject to inequality constraints, or subject to both equality and inequality constraints. Includes analytical and computational methods. Also offered as CAAM 563. Instructor(s): *Miele*

MECH 564 ENGI APPROACH OPTIMAL CONTROL (3)**ENGI Approach to Optimal Control**

Study of optimal control theory and calculus of variations. Includes minimization of functionals depending on variables subject to differential constraints, nondifferential constraints, initial constraints, and final constraints, as well as analytical and computational methods. Instructor(s): *Miele*

MECH 573 ADVANCED FLUID MECHANICS I (3)**Advanced Fluid Mechanics I**

Examination of conservation equations for viscous compressible fluids. Includes applications to viscous and inviscid flows, as well as simple flows of non-Newtonian fluids. Enrollment limited. Instructor(s): *Staff*

MECH 574 ADVANCED FLUID MECHNICS II (3)**Advanced Fluid Mechanics II**

Continuation of MECH 573. Advanced topics in fluid mechanics. Possible topics include: vortex dynamics, aeroacoustics, fluid stability theory, receptivity theory. Prerequisite(s): MECH 573 Instructor(s): *Staff*

MECH 580 MECH MODELL & ANALY PHYSIOLOGY (3)**Mechanical Modelling and Analysis of Physiological and Biological Systems**

A survey of existing Mathematical models for physiological systems will be presented. Bone Remodelling around Orthopedic devices, Circulatory Mechanics, Models for Immune Response, Reaction-Diffusion Systems, and others will be discussed. Instructor(s): *Staff*

MECH 582 CONVECTIVE HEAT TRANSFER (3)**Convective Heat Transfer**

Rigorous study of the transfer of heat by free and forced convection. Not offered every year. Instructor(s): *Bayazitoglu*

MECH 583 RADIATIVE HEAT TRANSFER I (3)**Radiative Heat Transfer I**

This course will analyze the radiative heat transfer phenomena. After introduction, radiative exchange between surfaces in an enclosure without a radiatively participating medium will be analyzed. Then the radiative transfer equation through an absorbing, emitting and scattering medium (or participating medium) will be developed. The radiative properties of gases and particulates will be discussed. Instructor(s): *Bayazitoglu*

MECH 585 BIOMECHANICS OF HUMAN MOVEMENT (3)**Biomechanics of Human Movement**

Graduate version of MECH 485. Term project required. Instructor(s): *Staff*

(F) = Fall; (S) = Spring

MECH 586 RESPIRATORY SYSTEM MECHANICS (3)**Respiratory System Mechanics**

Mechanics of ventilation, respiratory muscle mechanics, rib cage mechanics, mechanical coupling between the respiratory muscles and the rib cage, and inferences on mechanics from respiratory muscle anatomy. The class will meet in the Pulmonary Division at Baylor College of Medicine in the Texas Medical Center. Instructor(s): *Staff*

MECH 588 DESIGN OF MECHATRONIC SYSTEMS (3)**Design of Mechatronic Systems**

Graduate version of MECH 488. Offered alternate years. Prerequisite(s): MECH 343, MECH 420, ELEC 241. Instructor(s): *O'Malley*

MECH 591 GAS DYNAMICS (3)**Gas Dynamics**

Study of the fundamentals of compressible, one-dimensional gas flows with area change, normal shocks, friction, and heat addition. Includes oblique shocks, Prandtl-Meyer flows expansions, and numerical techniques. Prerequisite(s): MECH 371 Instructor(s): *Meade*

MECH 593 MECH ENGINEERING PROBLEMS (3)**Mechanical Engineering Problems**

An approved investigation or design project under the direction of a member of the staff. Open only to mechanical engineering majors. Instructor(s): *Staff*

MECH 594 INTRO TO AERODYNAMICS (3)**An Introduction to Aerodynamics**

Development of theories for the prediction of aerodynamic forces and moments acting on airfoils, wings, and bodies. Includes their design applications. Not offered every year. Instructor(s): *Staff*

MECH 595 MODELING TISSUE MECHANICS (3)**Modeling Tissue Mechanics**

Independent study and seminar course which focuses on modeling the mechanical properties of biological tissues. Data from experiments will be used to refine the predictions of nonlinear mathematical computer models. Aimed at juniors, seniors, and graduate students. Laboratory work performed at Baylor College of Medicine, computer work at Rice University. Instructor(s): *Boriek*

MECH 601 SPECIAL TOPICS (HOURS VARIABLE)**Special Topics**

Topics may vary. Please consult with the department for additional information. Instructor(s): *Staff*

MECH 602 SPECIAL TOPICS (HOURS VARIABLE)**Special Topics**

Topics may vary. Please consult with the department for additional information. Instructor(s): *Staff*

MECH 603 SPECIAL TOPICS (HOURS VARIABLE)**Special Topics**

Topics may vary. Please consult with the department for additional information. Instructor(s): *Staff*

MECH 604 SPECIAL TOPICS (HOURS VARIABLE)**Special Topics**

Topics may vary. Please consult with the department for additional information. Instructor(s): *Staff*

MECH 605 SPECIAL TOPICS (HOURS VARIABLE)**Special Topics**

Topics may vary. Please consult with the department for additional information. Instructor(s): *Staff*

MECH 606 GRADUATE SEMINAR (1)**Graduate Seminar**

Instructor(s): *Staff*

MECH 610 STRUCT DYNAM SYSTMS&CONTROL (3)**Structural Dynamic Systems and Control**

Elements of linear systems and control theory, transform methods, state space methods, feedback control, and Lyapunov's method. Analytical modeling of structures, control algorithms, and response to dynamic loading. Base isolation, passive energy dissipation, smart materials and devices, active, hybrid and semi-active structural control applications monitoring, and case studies. Also listed as CEVE 610. Prerequisite(s): CEVE 521 or MECH 502 and CEVE 527. Instructor(s): *Nagarajan*

(*) = credit hours per semester

MECH 611 INDEPENDENT STUDY (HOURS VARIABLE)**Independent Study**Instructor(s): *Staff***MECH 612 INDEPENDENT STUDY (HOURS VARIABLE)****Independent Study**Instructor(s): *Staff***MECH 621 MME RESEARCH PROJECT (3)****MME Research Project I**

This is the first part of the M.M.E. research project course. The faculty advisor, taking into account the background and research interests of the student as well as the research interests of the faculty advisor, will determine the contents. Course requirements will include a final report. Instructor(s): *Staff*

MECH 622 MME RESEARCH PROJECT II (3)**MME Research Project II**

This is the second part of the M.M.E. research project and continuation of MECH 621. Course requirements will include a final report. Instructor(s): *Staff*

MECH 654 ADV COMPUTATIONAL MECHANICS (3)**Advanced Computational Mechanics**

Advanced topics in computational mechanics with emphasis on finite element methods and fluid mechanics. Stabilized formulations. Fluid-particle and fluid-structure interactions and free-surface and two-fluid flows. Interface-tracking and interface-capturing techniques, space-time formulations, and mesh update methods. Enhanced discretization and solution techniques. Iterative solution methods, matrix-free computations, and advanced preconditioning techniques. Also offered as BIOE 654 and CEVE 654. Prerequisite(s): MECH 554 or permission of instructor. Instructor(s): *Tezduyar*

MECH 678 ADVANCED STOCHASTIC MECHANICS (3)**Advanced Stochastic Mechanics**

Nonlinear random vibrations, Statistical Linearization, ARMA filters modeling, Monte Carlo Simulation, Wiener-Volterra series, time-variant structural reliability, and Stochastic Finite Elements are presented from a perspective of usefulness to aerospace, civil, marine, and mechanical applications. Also offered as CEVE 678. Instructor(s): *Spanos*

MECH 679 APPLIED MONTE CARLO ANALYSIS (3)**Applied Monte Carlo Analysis**

Probability density and power spectrum based simulation concepts and procedures are discussed. Scalar and vectorial simulation are addressed. Spectral decomposition and digital filter algorithms are presented. Applications from aerospace, earthquake, marine, and wind engineering, and from other applied science disciplines are included. Also offered as CEVE 679. Instructor(s): *Spanos*

MECH 684 RADIATIVE HEAT TRANSFER II (3)**Radiative Heat Transfer II**

Study of radiative transfer in the presence of absorbing, emitting, and scattering media. Includes combined radiation, conduction, and convection, as well as heat transfer in furnaces, fire propagation, and air pollution problems. Not offered every year. Instructor(s): *Bayazitoglu*

MECH 695 ADV MODELING TISSUE MECHANICS (3)**Advanced Modeling of Tissue Mechanics**

Continuation of MECH 595/BIOE 595 with emphasis on advanced modeling the micromechanics of biological tissues. Independent study and seminar/discussion course. Data from experiments will be used to refine the predictions of mathematical models. Designed for juniors, seniors, and graduate students. Laboratory work performed at Baylor College of Medicine and computer work at Rice University. Instructor(s): *Boriek*

MECH 800 RESEARCH AND THESIS (HOURS VARIABLE)**Research and Thesis****MGMT (MANAGEMENT)****Jones School of Management/Management****MGMT 501 FINANCIAL ACCOUNTING (2)****Financial Accounting**

Introduction to the preparation, analysis, and use of corporate financial reports. Covers the basic techniques of financial reporting and analysis from the perspective of managers as well as external users of information such as investors. Required for MBA. Instructor(s): *Widener*

(F) = Fall; (S) = Spring

MGMT 502 COST MANAGEMENT (1)**Cost Management**

Introduction to the use of financial and cost information by managers in budgeting, resource allocation, pricing, quality control, and other contexts to help managers set goals and monitor and evaluate performance. Required for MBA. Instructor(s): *Anderson*

MGMT 503 MANAGEMENT CONTROL (1)**Management Control**

This course builds on earlier courses on cost management and corporate strategy and focuses on the management control systems that can be used for the effective implementation of strategy. Included topics are the balanced scorecard, stretch budgets, performance evaluation and incentives, organizational and operational controls, and the development of metrics to motivate and evaluate performance. Required for MBA.

MGMT 507 LEADERSHIP (1)**Leadership**

Explores different perspectives on leadership and management. Considers how leadership and management complement each other and what constitutes effective leadership in business situations. Required for MBA. Instructor: *Smith*

MGMT 508 POWER, INFLUENCE & POLITICS (1)**Power, Influence, and Politics**

Development of action-oriented skills in organizational politics, personal influence, and impression management, grounded in an integration of intellectual understanding of relevant theories and cases with experiential exercises. Required for MBA.

MGMT 509 NEGOTIATION (1)**Negotiation**

Development of analytical and behavioral skills for effective negotiation, including topics such as diagnosing conflict, decision making, adversarial versus cooperative strategies, ethical and cultural factors, and third-party intervention. Required for MBA.

MGMT 510 ORGANIZATIONAL BEHAVIOR (1)**Organizational Behavior**

Study of the many factors, which influence how individuals, groups, and teams behave and function in complex organizations and how they can be effectively managed. Required for MBA. Instructor(s): *George*

MGMT 511 ORGNZTNL THEORY & CHANGE MGMT (1)**Organizational Theory and Change Management**

Emphasizes understanding what constitutes effective organizational designs; considers both the macro designing of change initiatives and the micro execution of those initiatives. Required for MBA. Instructor(s): *Weigelt*

MGMT 530 INFORMATION TECHNOLOGY (1)**Information Technology**

Overview of information technology and its applications in organizations, with emphasis on effectively managing the use of information technology. Required for MBA. Instructor(s): *Gorry*

MGMT 540 MANAGERIAL ECONOMICS (1)**Managerial Economics**

We study production and pricing decisions under different assumptions about firm market power. Emphasis is placed on understanding the relevant costs in firm decision-making. Examples are used from marketing and accounting areas. Required for MBA.

MGMT 541 ECON ENVIRONMENT OF BUSINESS (1)**Economic Environment of Business**

Examination of the global economic environment that serves as a backdrop for business decision making, with emphasis on the key macroeconomic policy goals and tools and how they affect exchange rates, interest rates, business cycles, and long-term economic growth. Required for MBA.

MGMT 543 FINANCE (3)**Finance**

Introduction to the theory and practice of corporate finance, with emphasis on topics such as valuation, capital budgeting, risk and return, and capital structure. Required for MBA. Instructor(s): *Grullon*

MGMT 560 BUSINESS ETHICS (1)**Business Ethics**

An exploration of the ethical and legal bases of managerial decision making and the social dimension of the business firm. Required for MBA. Instructor(s): *Cording*

(#) = credit hours per semester

MGMT 561 BUSINESS-GOVERNMENT RELATIONS (1)**Business-Government Relations**

Study of how public policy influences the private competitive environment of the firm. Examines the major political institutions and actors--Congress, the President, interest groups, the media, and administrative agencies--that shape U.S. public policy. Students analyze business political strategies and formulate several of their own. Required for MBA. Instructor(s): *Schuler*

MGMT 565 GLOBALIZATION OF BUSINESS (1)**Globalization of Business**

Examination of the increasing importance of trade and globalization to U.S. business. Course first focuses on the industrial winners and losers of free trade and protectionism, and then examines the institutions governing trade between the U.S. and its industrial competitors. Finally, the course examines the main challenges for foreign investment in important markets, such as Japan and China. Required for MBA. Instructor(s): *Zhang*

MGMT 570 COMPETITIVE STRATEGY (2)**Competitive Strategy**

Systematic examination of models and techniques used to analyze a competitive situation within an industry from a strategic perspective. Examines the roles of key players in competitive situations and the fundamentals of analytical and fact-oriented strategic reasoning. Examples of applied competitive and industry analysis are emphasized. Required for MBA. Instructor(s): *Staff*

MGMT 574 OPERATIONS MANAGEMENT (1)**Operations Management**

Introduction to the principles of production management and process improvement. Required for MBA.

MGMT 580 MARKETING (3)**Marketing**

Introduction to the key concepts underlying the function of marketing and its interaction with other functions in a business enterprise. Explores marketing's role in defining, creating, and communicating value to customers. Primarily case-based with capstone simulation exercise, providing a foundation for advanced course work in marketing. Required for MBA. Instructor(s): *Zhu, Westbrook*

MGMT 595 DATA ANALYSIS (2)**Data Analysis**

The ever-increasing capacity of computers to analyze data and the explosion of the amount of data available have resulted in an increased role for data analysis as an aid to business decision-making. This course exposes the student to the most important ideas and methods relevant for data analysis in a business context. Emphasizing practical applications to real problems, the course covers the following topics: sampling, descriptive statistics, probability distributions, and regression analysis. Required for MBA. Instructor(s): *Borle*

MGMT 596 COMMUNICATIONS I (2)**Communications I**

Introduction to the strategy and practice of management communication. Assignments are based on core courses integrated across the curriculum. Includes individual communication skills assessment and development and team-based oral and written communication instruction. Required for M.B.A. Instructor(s): *Barrett, Peters, Wiley*

MGMT 598 ACTION LEARNING PROJECT I (2)**Action Learning Project I**

ALP I focuses completely on the group project, including interacting with the faculty and corporate liaison to refine the scope and proposal, developing data gathering methods (surveys, interviews, research, etc.), completing research, beginning analysis, conducting progress reviews, and adjusting the project as necessary to ensure satisfactory completion of the project in ALP II. Required for MBA.

MGMT 599 ACTION LEARNING PROJECT II (4)**Action Learning Project II**

Group project in which students, under the guidance of faculty and a corporate liaison, study the scope of improvements needed, examine a company's processes, and then provide written recommendations and present findings to senior management. Required for MBA.

MGMT 601 FINANCIAL STATEMENT ANALYSIS (3)**Financial Statement Analysis**

Study of how investors, financial analysts, creditors, and managers use financial statement information in evaluating firm performance and in valuing firms. Emphasizes industry and firm-level analysis of accounting information using financial accounting concepts and finance theory. Instructor(s): *Dharan, Rountree*

(F) = Fall; (S) = Spring

MGMT 602 STRATEGIC COST MGMT (1)**Strategic Cost Management**

Using the value chain as the organizing framework, this class explores how firms design business processes and management information systems to achieve strategic advantage through a competitive cost structure. Competitive cost structures are increasingly obtained, not through technical efficiencies of a single firm, but through innovative collaboration among firms--what has been termed the extended enterprise. Thus more than half of the course considers strategic cost management at the boundaries of the firm--where the firm interacts with suppliers, strategic alliance partners, customers and society. Instructor(s): *S. Anderson*

MGMT 603 FEDERAL TAXATION (3)**Federal Taxation**

Survey of the basic federal tax law: concepts of business income and deductions, proceeding to tax aspects of different forms of business organizations, emphasizing corporations. Includes sections of tax planning for mergers and acquisitions, compensation planning, and international tax effects. Introduces tax research. Instructor(s): *Viebig, Westheimer*

MGMT 606 CORPORATE FINANCIAL REPORTING (2)**Corporate Financial Reporting**

Course covers aspects of interest to corporate finance officers and financial statement readers on a number of critical financial reporting issues, including those related to merchandise inventories, fixed and intangible assets, liabilities, shareholders' equity, business combinations, consolidated financial statements and segment reporting, and the effects of changing prices on net income and rate of return. The strategic role of the newly restructured International Accounting Standards Board, especially as viewed by the Securities and Exchange Commission and the European Commission, will be explored. Students will be apprised of the sweeping and fundamental changes that are occurring today in the milieu of international financial reporting.

MGMT 607 FINANCIAL REPORTING & ANALYSIS (2)**Financial Reporting and Analysis**

This course is intended to enhance your ability to relate economic events to financial statement disclosures and to aid in developing a coordinated set of concepts and principles to serve as a framework for analyzing a variety of financial reporting issues. The goal is to make you an informed issuer or user of financial statement information. We will focus on understanding the mapping between underlying economic events and the information in financial statements, and on how this mapping affects inferences about the firm's financial position and future profitability. To provide context for understanding the implications of firms' accounting and reporting decisions, we will rely on case analyses. Topics to be covered include accounts receivable and inventory valuation, intangible assets, intercorporate investments, including consolidations and goodwill accounting, post-employment benefits, stockholders' equity, and employee stock options. Pre-requisite(s): MGMT 501. Instructor(s): *Nelson*

MGMT 613 MANAGING FOR CREATIVITY (1)**Managing for Creativity**

Study of the nature of creativity, creative thinking skills and ways to encourage, promote, and effectively manage creativity and innovation in complex organizations. Instructor(s): *Zhou*

MGMT 614 ADV SEM IN STRAT MKNG FOR MGRS (3)**Advanced Seminar in Strategy Making for Managers**

This course builds upon the coverage of strategic management in core courses to provide participants with advanced skills for developing creative organizational strategies. It anticipates future strategy-making contexts facing organizations and examines a variety of useful ways to develop effective "emergent", "adaptive", "growing", and/or "analytic" strategies under these conditions. In this seminar, teams of participants are actively involved in building state-of-the-art strategy-making skills for successful management careers. Instructor(s): *Taylor*

MGMT 616 SEM. IN ORGANIZATIONAL PSYCH (3)**Seminar in Organizational Psychology**

The objective of this course is to orient students to current topics in organizational psychology and provide an advanced treatment of core concepts in organizational behavior. Topics will include organizational climate and culture, misbehavior in organizations, leadership, job satisfaction and job attitudes, and organizational justice. Topics will also cover a special section on recent advances in conducting organizational research, including multi-level modeling of organizational survey data. Course is also open to students pursuing a graduate degree in psychology. Instructor(s): *Smith*

MGMT 617 MANAGERIAL DECISION MAKING (3)**Managerial Decision Making**

Examination of current advances in managerial decision-making theories, processes and practices. Advances featured in the 2003 course include: problem finding and solving; enhancing decision-making creativity; avoiding cognitive decision traps; using the major decision-making approaches (decision analysis, logical incrementalism, and intuition); understanding team, inclusive, participative, and distributed decision making; and implementing decisions effectively.

(#) = credit hours per semester

MGMT 619 CORPORATE GOVERNANCE (1)**Corporate Governance**

Critical examination of director selection, board decision-making processes, chief executive officer evaluation and compensation, the board's role in strategic planning, the impact of external constituencies of governance, and legal aspects of governance. Not offered in 2004–2005.

MGMT 620 THE NEW ENTERPRISE (2)**The New Enterprise**

Evaluating opportunities and developing a business concept; analyzing new ventures; pricing, selling, and cost control; attracting stakeholders and bootstrap finance; the legal form of business and taxation; financing, deal structure and venture capital; harvesting value. Emphasis on case method. (NOTE: MGMT 620 and MGMT 621 provide much of the same content and may not both be taken for credit.) Instructor(s): *Napier*

MGMT 621 BUSINESS PLAN DEVELOPMENT (3)**The New Enterprise and Business Plan Development**

Evaluating opportunities and developing a business concept; analyzing new ventures; pricing, selling, and cost control; attracting stakeholders and bootstrap finance; the legal form of business and taxation; financing, deal structure and venture capital; harvesting value; developing a business plan. (NOTE: MGMT 620 and MGMT 621 provide much of the same content and may not both be taken for credit.) Instructor(s): *Crist, Napier*

MGMT 622 REAL TIME ENTERPRISE (2)**Real Time Enterprise**

Investigates the significance of this phenomenon with respect to key elements of traditional enterprises. The effect on business strategy is discussed, with a view toward competing in this new environment. Several types of contribution to value creation will be identified. Importantly, the value limits of the Real Time Enterprise (RTE) will also be identified, i.e., the point at which the cost of being real time exceeds the value. The new infrastructures and architectures needed to support Real Time Enterprises will also be explored. Instructor(s): *Timmreck, Papadopoulos*

MGMT 623 ENTREPRENSHIP IN BIOTECHNOLOGY (1)**Entrepreneurship in Biotechnology**

Provides an insider's perspective on workings and challenges of an early to mid-stage pharmaceutical company. Current company issues and case studies are used to discuss topics including pre-clinical & clinical development, licensing & business development and intellectual property and patent strategies. Intended for students considering a career in an entrepreneurial biotechnology company. Previous coursework in entrepreneurship or healthcare is preferred.

MGMT 624 REAL ESTATE (3)**Real Estate**

This course emphasizes the components and processes of real estate industry including identification and analysis of investment and development opportunities from an entrepreneurial standpoint. It utilizes Harvard Cases and requires a major field project. Guest lecturers will constitute a portion of most sessions.

MGMT 625 CREATIVE ENTREPRENEURSHIP (2)**Creative Entrepreneurship**

Designed for those wishing to form their own business. It takes the prospective entrepreneur from the conception stage through the opening of the doors on the first day of business. Students will form teams to make final presentations of their business plans. The winning team of the final presentation will be eligible to participate in the Southwest Business Plan Competition. Numerous invited speakers.

MGMT 626 VENTURE CAPITAL (2)**Venture Capital**

Overview of the venture capital industry; the organization and operation of venture capital funds; investment methodology; monitoring and portfolio liquidation; leveraged investing; and specialized investments.

MGMT 627 ENTERPRISE EXCHANGE (3)**Enterprise Exchange**

The needs approach to buying and selling businesses; enterprise valuation; deal and contract structuring; mergers and acquisitions; leveraged buyouts; consolidating fragmented industries. Instructor: *Williams*

MGMT 628 OPPORTUNITY, ID, & ANALYSIS (2)**Opportunity, Identification, and Analysis**

Opportunity Identification and Analysis teaches students to recognize attractive opportunities. The most attractive opportunities can generate large cash flows with a minimum of investment; the least attractive ideas have little chance for significant profits but soak up large amounts of time and money. Students will learn to apply skills learned in Finance, Accounting, Marketing and Strategy to a series of real world case dilemmas. Course not offered 2004–2005.

(F) = Fall; (S) = Spring

MGMT 630 SYSTEMS ANALYSIS AND DESIGN (1)**Systems Analysis and Design**

History and evolution of software systems analysis and design; the major approaches to systems development, including structured analysis, data-driven analysis, and object-oriented analysis and design techniques; and examination of traditional life-cycle methodologies and newer interactive approaches to systems development. Course not offered 2004-2005.

MGMT 632 E-BUSINESS (2)**E-Business**

An overview of electronic commerce, including an examination of methods used to create and manage a business on the Internet. Course not offered 2004-2005.

MGMT 633 BUSINESS PROCESS RE-ENGINEERING (1)**Business Process Re-Engineering**

The origins of reengineering, current methods for reorganizing a corporation around business processes, reengineering's relationship to systems development, and the relevance of developing modern information systems around business processes. Course not offered 2004-2005.

MGMT 634 INTELLECTUAL CAPITAL (1)**Intellectual Capital**

Exploration of intellectual capital knowledge, information, intellectual property, experience—that can be put to use to create wealth. This course focuses on intellectual capital asset mapping (human, structural, customer capital), knowledge work, role of collaborative information technologies, and creating networked organizations. Course not offered 2004-2005.

MGMT 635 EMERGING TECHNOLOGIES (2)**Emerging Technologies**

Leaders of 21st century companies are digital business architects requiring insight into the emerging technology landscape in order to exploit potential disruptions rather than being made irrelevant by them. The goal is not to predict the future, but to make better decisions in the present. What will be the important technologies in two to three years? What will be the impacts of these new technologies on work? Organizations? New value propositions? In this course, we will scan new technologies by looking at innovations in development as well as discuss cases of the recent past to learn from companies that were both successful and not so successful in exploiting them. Course not offered 2004-2005.

MGMT 637 STRATEGIC USE OF INFO TECH (1)**Strategic Use of Information Technology**

Examination of the strategic use of information technology to provide a competitive advantage. Exploration of business models, case studies, IT trends, and hot topics. Instructor(s): *J. Baker*

MGMT 640 INVESTMENT & PORTFOLIO ANLS. (1)**Investments and Portfolio Analysis**

This course, conducted in seminar format, will review recent advances in financial theory and research concerning asset pricing and portfolio management. The course will focus on both classic as well as new, cutting-edge issues in both investment and corporate finance. Instructor(s): *Foote*

MGMT 641 INVEST & PORTFOLIO ANALYSIS-B (1)**Investments and Portfolio Analysis (B)**

This continues the study of financial theory and research concerning asset pricing and portfolio management that was initially started in MGMT 640. The course focuses on classic issues in investment finance as well as new and exciting issues at the cutting edge of finance. The course is conducted in an interactive, seminar-like format and is open to all second year students who satisfy the prerequisites regardless of whether they have or have not taken MGMT 648. Instructor(s): *Foote*

MGMT 642 FUTURES AND OPTIONS I (1)**Futures and Options I**

An introduction to forward, futures, option, and swap contracts, including the basic valuation principles, the use of these contracts for hedging financial risk, and an analysis of option-like investment decisions. Recommended for finance students. Instructor(s): *Fleming*

MGMT 643 PORTFOLIO MANAGEMENT I (3)**Portfolio Management I**

Exploration of professional money management by students managing an actual portfolio (the M.A. Wright Investment Fund). Includes all aspects of asset management and performance measurement with emphasis on the class's effort to evaluate securities and arrive at actual buy/sell decisions. Students are expected to continue to MGMT 644. Limited enrollment (individual applications reviewed by instructor). Instructor(s): *Foote*

(*) = credit hours per semester

MGMT 644 PORTFOLIO MANAGEMENT II (3)**Portfolio Management II**

Continuation of MGMT 643: Exploration of professional money management by students managing an actual portfolio (the M.A. Wright Investment Fund). Includes all aspects of asset management and performance measurement with emphasis on the class's effort to evaluate securities and arrive at actual buy/sell decisions. Limited enrollment. Instructor(s): *Foote*

MGMT 645 INVESTMENTS (3)**Investments**

Review of classic investment theory, with emphasis on measuring and managing investment risk and return. Includes the development of modern portfolio theory and asset pricing models, an introduction to option and futures contracts, market efficiency, and stock valuation. Recommended for most finance students. Instructor(s): *Xing*

MGMT 646 CORPORATE FINANCIAL REPORTING (2)**Corporate Financial Reporting**

Exploration of value creation, diversification, risk-benefit analysis, tax policy, and present value, with emphasis on practical problems of the corporation. Enrollment limited. Course not offered 2004–2005.

MGMT 647 CORPORATE FINANCIAL MANAGEMENT (2)**Corporate Financial Management**

Examination of corporate investment and financing, with emphasis on valuation methods and how financial policy impacts corporate value. Includes the implications of agency costs, asymmetric information and signaling, taxes, mergers and acquisitions, corporate restructuring, real and embedded options, and financial risk management. Recommended for finance students. Instructor(s): *Grullon*

MGMT 648 APPLIED FINANCE (2)**Applied Finance**

Study of the theory and practice of the fundamental principles in finance emphasizing hands-on experience with a wide range of corporate finance and investments applications. The course provides extensive opportunity to implement finance theory at a practical level and to develop advanced analytical spreadsheet expertise. Instructor(s): *Weston*

MGMT 650 FUTURES AND OPTIONS II (3)**Futures And Options II**

In-depth analysis of the theory and practice of derivative securities. Develops a general set of valuation, hedging, and risk management techniques which are then applied to the equity, interest rate, currency, and commodity markets. Instructor(s): *Fleming*

MGMT 651 FIXED INCOME MANAGEMENT (3)**Fixed Income Management**

Study of fixed income securities and markets in the U.S. and abroad, with an emphasis on the term structure of interest rates and the pricing of fixed income securities, derivatives, and portfolios. Include Treasury, Corporate Debt, and Mortgage-Backed Securities. Instructor(s): *Wang*

MGMT 652 MERGERS & ACQUISITIONS (2)**Mergers and Acquisitions**

The course examines the merger and acquisition process from the perspectives of buyers and sellers. Attention is paid to the internal (make) versus external (buy) growth opportunities and their value consequences. The course also analyzes the M&A transaction process through the study of cases. An additional focus will be in the interaction of strategic planning, value planning, financial strategies, and investment decisions.

MGMT 653 PRIVATE EQUITY (1)**Private Equity**

Provides an overview of the private equity process. Private equity is a rapidly growing segment of the capital markets that funds; mature and growing companies during the pre-public growth phase. Many companies are sold to strategic buyers as an alternative to going public. The private equity market also provides capital for LBOs and MBOs. We will examine three perspectives: (1) the organization and operation of private equity funds, (2) the due diligence investigation, negotiation of terms and valuation analysis necessary to make private equity investments and (3) exiting private equity investments.

MGMT 654 COMMERCIAL BANKING (1)**Commercial Banking**

Role of commercial banks in: Payments and clearing; new money creation, financing enterprise; reacting to monetary policy, credit criteria, services, economic and competitive environment, and global issues. Enrollment is limited to 25 for each class. Instructor(s): *Baker*

(F) = Fall; (S) = Spring

MGMT 656 ENERGY DERIVATIVES (3)**Energy Derivatives**

Examines the physical energy markets, common financial instruments, and their applications, including cross-commodity hedges, dual variable assets, synthetic options, and swaps. Decision criteria for both outright and risk management trading are covered with respect to both fundamental and technical analysis. Eight guest speakers from various companies throughout the industry will participate. Instructor(s): *Kaminski*

MGMT 657 INTERNATIONAL FINANCE (3)**International Finance**

Exploration of special problems encountered by financial officers in international arenas. Includes the economics of the foreign exchange market, exchange rate risk management, international portfolio management, capital budgeting for international projects, and international financing strategies. Instructor(s): *Watanabe*

MGMT 658 APPLIED RISK MANAGEMENT (2)**Applied Risk Management**

This course focuses on applied risk management projects. The hands-on experience allows in-depth analysis and understanding of practical risk management issues and exposure to different risk management tools including Value at Risk and Monte Carlo simulations. The course emphasizes student development and application of skills rather than lectures.

MGMT 659 REAL ESTATE FINANCE (3)**Real Estate Finance**

This course provides an introduction to the concepts and techniques used to analyze and finance commercial real estate assets. The topics covered include financial analysis of mortgage investments, development-stage and permanent financing strategies, commercial mortgage-backed, and real estate investment trusts. Instructor(s): *Downing*

MGMT 660 PUB NONPROFIT FINANCIAL MGMT (HOURS VARIABLE)**Public Nonprofit Financial Management**

Introduction to the key elements of financial management in the public and nonprofit sectors: noncommercial accounting, appropriations process, budgeting procedures, social cost-benefit and cost-effectiveness analysis, financial supervision, and related topics. Suitable for students interested in government, health care, nonprofit management, or consulting practices in those areas. Instructor(s): *Windsor*

MGMT 661 INTERNATIONAL BUSINESS LAW (3)**International Business Law**

Exploration of U.S. and foreign law as it relates to the law-business interface of importing-exporting trade problems, foreign operations, and foreign investments. Includes the extraterritorial impact of U.S. law, corporate organization, foreign exchange, joint ventures, withdrawal from foreign ventures, and third-country manufacturing. Instructor(s): *Hannan*

MGMT 663 ADVANCED CORPORATE FINANCE (1)**Advanced Corporate Finance**

This course provides students an in-depth study and analysis of advanced topics in corporate finance such as financial restructuring through mergers and acquisitions and spin-offs and financial engineering such as issues of complex securities. The course requires a solid understanding of the theory and practice of corporate finance. Course not offered 2004–2005.

MGMT 667 CORP FIN FOR NON-FIN MANAGERS (2)**Corporate Finance for Nonfinancial Managers**

Focuses on the essentials of corporate finance for students who do not wish to pursue finance-oriented careers. It builds on the basic principles of valuation, financing, and budgeting, and introduces personal taxes, agency problems, real options, and mergers and acquisitions. The emphasis is on an overview of leading financial theories, empirical evidence, and case studies and requires an understanding of the basic principles of finance.

MGMT 668 INTERNATIONAL TRADE (3)**International Trade**

An overview of the economic and political environment of international trade, foreign investment, and competitiveness, focusing on institutions that affect international commerce. Instructor(s): *Schuler*

MGMT 669 BUSINESS STRAT IN ENERGY IND (1)**Business Strategy in the Energy Industry**

This course is designed to examine business in the energy industry from a strategic standpoint, and provide students with a basic understanding of major business issues in the energy industry, including historical and current events. Emphasis will be on oil and gas, but may also touch on other energy subset such as utilities.

(#) = credit hours per semester

MGMT 670 STRATEGIC PLAN. & CREATIVITY (3)**Strategic Planning and Creativity**

Examination of strategic planning approaches and methods for managing 21st Century organizations. Emphasize design and implementation of planning systems that are highly responsive to the dynamic, competitive, stakeholder influenced planning contexts facing modern organizations. Examples of excellent planning performed by a variety of actual companies and industries are analyzed.

MGMT 671 CORP CRISIS MGMT COMMUNICATION (1)**Corporate Crisis Management Communication**

Studies current methods of crisis communications with practical application utilizing numerous recent real-world case studies. Class will research and prepare strategies, make recommendations, then dissect and analyze each crisis situation, the processes, policies and results. This process will enhance strategic thinking, allow the consideration of pros and cons of alternative courses of action and provide a better understanding of the management decision making process. Class time will be interactive with individual and small group participation. Instructor(s): *Staff*

MGMT 673 INTERNATIONAL COMMUNICATIONS (1)**International Communications**

Students will learn how to assess communication requirements for a broad range of global business situations and develop successful communication strategies appropriate to specific international engagements. Students will also become familiar with a variety of resources available to assist with international and intercultural communication issues. Instructor(s): *Henry*

MGMT 674 PRODUCTION & OPS MANAGEMENT (3)**Production and Operations Management**

Introduce students to the key issues facing managers regarding the operations management of their companies. The goal is to expose students to operations management issues they may face in general management or financial management of companies, either in the manufacturing or service sectors. Topics include: Just In Time (Lean) Production, Total Quality Management, Statistical Process Control (Six Sigma), The Theory of Constraints, Business Process Re-engineering, Supply Chain Cost Management, Leadership Skills in Operations, and Participative Management. Instructor(s): *Flatt*

MGMT 675 MANAGEMENT OF INNOVATION (2)**Management of Innovation**

This course is a study in the creation and maintenance look of competitive advantage through both incremental and radical innovation. We learn to formulate innovation strategies consistent with a firm's business strategies. We study processes, management systems, and organizational structures that promote and support innovation. The scope of the course ranges from new product development to business model innovation. We also seek to understand the key drivers of innovation and sources for new ideas. The focus is primarily on large firms. The perspective is that of general management. Readings and case studies are used. Instructor(s): *Austgen*

MGMT 676 PROJECT MGMT/PROJECT FINANCE (3)**Project Management/Project Finance**

Examination of the practice of developing, managing and financing projects, and managing the expectations of project stakeholders. Includes introduction to project alignment methodology, decision analysis, risk analysis and mitigation for project application, and the introduction of the innovative 'project finance' discipline which is substantially different from organic corporate financing of projects. Not offered in 2004–2005.

MGMT 678 U.S. HEALTH CARE MANAGEMENT (3)**U.S. Health Care Management**

Sequence of offerings that provides an introduction to the business of health care in the U.S. Topics include health care systems, health service organizations, and issues relating to the aging problem and the technology explosion in health care. Instructor(s): *Boom, Shook, Parke, Whitney*

MGMT 679 COST & QUALITY IN HEALTH CARE (HOURS VARIABLE)**Cost and Quality in Health Care**

Sequence of offerings that provides further analysis of the business of health care in the U.S. Topics include issues of cost and quality, health care financial management, and national and international solutions to the challenge of providing health care to a population. This class is designed to stand-alone, yet build upon MGMT 678. Instructor(s): *Cunningham, Parke, Shook, Whitney*

MGMT 681 HEALTHCARE/FIN & STRG MGMT (1)**Financial Planning and Strategic Mgmt. in Health Care**

No description. Not offered in 2004–2005.

(F) = Fall; (S) = Spring

MGMT 682 PRICING AND DISTRIBUTION (1)**Pricing and Distribution**

Study of the paradigm that success of a product lies not only in its acceptance by the end consumer but also in how it priced and how it reaches the intended consumer, with emphasis on understanding and analyzing the issues, problems, and opportunities characteristic of the channel relationship and of the various faces of pricing. Instructor(s): *Dholakia*

MGMT 683 SERVICE MRKTNG AND MGMT (3)**Service Marketing and Management**

Exploration of challenges in the marketing of services, with emphasis on service quality, the importance of cross-functional interactions, and the development of breakthrough service organizations. Examines the differences between marketing services and marketing products, service quality, customer satisfaction, the design of services, and service guarantees, by using lectures, discussions, and case analyses. Course not offered 2004–2005.

MGMT 684 PRODUCT MANAGEMENT (3)**Product Management**

Application of various dimensions of marketing strategy and management to the role of the product manager responsible for all marketing activities of a given product. Instructor(s): *Perkins*

MGMT 686 MARKETING RESEARCH (2)**Marketing Research**

The objective of the course is to provide a comprehensive look at the marketing research process and the associated data collection techniques that can be used to collect information to better manage the marketing mix. Qualitative, survey-based, and experimental research designs will be discussed. Instructor(s): *Singh*

MGMT 687 MARKETING STRATEGY (3)**Marketing Strategy**

Considers key elements of marketing strategy, namely, segmentation, targeting, positioning, new product introduction, product line policies, competition. Also treats development of strategic marketing plan. The concepts are discussed through cases, lectures, and a simulation game called MARKSTRAT. Course not offered 2004–2005.

MGMT 688 BUYER BEHAVIOR (2)**Buyer Behavior**

Drawing on established theoretical frameworks of cognitive and social psychology, this course examines three aspects of consumer behavior: (1) individual, social and cultural influences on consumers, (2) psychological mechanisms of pre- and post-consumption processes such as decision-making and attitude formation & change, and (3) methodological issues in consumer analysis. Implications for strategy as well as marketing program design, measurement and execution are discussed. These topics will be studied through discussion of academic articles, cases and projects. Instructor(s): *Dholakia*

MGMT 689 MARKETING MODELS (3)**Marketing Models**

Development and analysis of state-of-the-art marketing models that utilize consumer-level data and statistical software packages (SAS, SPSS, and GAUSS) to uncover the various key marketing measures such as price and advertising elasticities, to study the impact of promotions and advertising on sales, to analyze the diffusion of new products such as answering machines and cellular phones, and to do segmentation and market structure analysis. Course not offered 2004–2005.

MGMT 692 MARKETING FOR HIGH-TECH INDUS. (2)**Marketing for High Technology Industries**

Examines the opportunities and challenges of marketing on the Internet, focusing on three areas: strategy, communications and consumers. First, we consider strategic issues facing internet marketers, and examine emerging and traditional theoretical frameworks and concepts of value. Second, we examine the media characteristics and potential of the digital environment, and compare it to traditional forms of marketing communication. Third, we study demand-side issues, examining consumer behavior in digital environments with implications for marketers. These topics will be studied through cases, discussions of academic and trade articles, and projects. Instructor(s): *Dholakia*

MGMT 693 NEW PRODUCTS & SERVICES (3)**New Products and Services**

Exploration of the critical role of new products within the corporation and in small businesses, focusing on consumer products. Discusses the critical steps in new product development from ideal generation to business analysis and cross-functional team management to product launch into the marketplace. Students will work in groups to develop their own new products and to prepare the key elements of a new product introduction. Instructor(s): *Singh*

(#) = credit hours per semester

MGMT 694 ADVERTISING CREATIVITY (1)**Advertising Creativity**

Many CEOs and Marketing Managers are not trained how to evaluate advertising creative or ad content even though advertising plays a key role in a company's/product's marketplace performance. Advertising Creative Management will provide a basic framework for managing and evaluating advertising creative with a focus on television ads. The course will include lectures, numerous advertising samples for discussion, a guest speaker and two assignments. There will not be a final exam. Course not offered 2004–2005.

MGMT 695 TRADING ROOM SEMINAR (1)**Trading Room Seminar**

Independent projects based on data, software, and analysis techniques developed in the Jones School trading room. Course not offered 2004–2005.

MGMT 696 MKTG FOR FINANCIAL SRVS INDUS. (1)**Marketing for Financial Services Industries**

The objective of this course is to help participants better understand market research data and special research techniques, including test marketing, advertising research, and new product research.

MGMT 697 ADVERTISING & PROMOTION (3)**Advertising and Promotion**

This course will take an Integrated Marketing Communications approach to the development, implementation and control for advertising and promotion programs. We will examine the role of Integrated Marketing Communications in marketing, setting objectives and budgets, development, monitoring, evaluating for advertising, direct marketing, public relations, and sales promotion programs. Instructor(s): *Yoon*

MGMT 699 ADVANCED MARKETING RESEARCH (3)**Advanced Marketing Research**

In this course we develop a thorough understanding surrounding the design of studies to measure perception and preference in a market. Topics include: Projective Techniques, Multidimensional Scaling, Factor Analysis, Conjoint Analysis, and Choice Models. Design of data collection instruments, collection, analysis, and reporting of results are emphasized in a project context.

MGMT 700 INDEPENDENT STUDY (HOURS VARIABLE)**Independent Study**

Independent study or directed reading on an approved project under faculty supervision. Contact MBA program office for application information. No more than 3 credit hours of independent study will count towards graduation unless approved by the Jones School Academic Standards Committee.

MGMT 701 MANAGEMENT CONSULTING (1)**Management Consulting**

This course will introduce students to the basics of management consulting, with a focus on what it means to be a successful management consultant. The course will include instruction on managing client relations and projects, determining and controlling the scope of engagements, working effectively in, and leading client teams, and integrating strategic/analytic, organizational/process, and behavioral/anthropological disciplines into lasting impact for clients. Class work will include case studies, role-play, and interaction with real clients. Instructor(s): *Kurtzman*

MGMT 703 FIELD STUDY IN AMER BUSINESS I (0)**Field Study in American Business I**

The purpose of this course is to expose students to the American business enterprise. This exposure is accomplished through two primary means: (1) readings about the drivers of success in U.S. firms; and (2) a summer internship with a firm in the United States. The readings are meant to complement much of your course work in the first year of the MBA program. Instructor(s): *Miller*

MGMT 704 FIELD STDY IN AMER BUSINESS II (0)**Field Study in American Business II**

The purpose of this course is to expose students to the American business enterprise. This exposure is accomplished through two primary means: (1) readings about the drivers of success in U.S. firms; and (2) a fall internship with a firm in the United States. The readings are meant to complement much of your course work in the second year of the MBA program. Instructor(s): *Miller*

MGMT 705 FLD STDY IN AMER BUSINESS III (0)**Field Study in American Business III**

The purpose of this course is to expose students to the American business enterprise. This exposure is accomplished through two primary means: (1) readings about the drivers of success in U.S. firms; and (2) a spring internship with a firm in the United States. The readings are meant to complement much of your course work in the second year of the MBA program. Instructor(s): *Miller*

(F) = Fall; (S) = Spring

MGMT 706 MANAGEMENT OF TECHNOLOGY (1)**Management of Technology**

This course is a study in the creation and maintenance of competitive advantage through the development and exploitation of technology in both core products and enabling processes. We study the formulation and implementation of technology strategy and seek to understand how new and improved technologies are exploited through innovation. We learn to formulate technology strategy. We explore the appropriate scope and dimensions of technology strategy, forces that shape it, processes for crafting it, and integration of technology strategy into the firm's corporate- and business-level strategies. We also study processes, management systems, and organizational structures that promote effective technology development. The focus is primarily on large firms. The perspective is that of general management. Instructor(s): *Merrill*

MGMT 707 BUYER BEHAVIOR II (1)**Buyer Behavior II**

The objective of this course is to understand the psychological mechanisms underlying important marketing processes. In particular, we will examine the psychological bases of customer satisfaction, loyalty, relationship marketing, and branding. In each case, drawing on psychological theoretical frameworks, we will understand what these constructs mean from the consumer's standpoint, and how managers should take these meanings into account during planning, creating and executing marketing strategies. It is expected that this knowledge will benefit not just students interested in a marketing emphasis, but those in general management and finances as well, in evaluating the implications of their functional responsibilities on their firm's top-line through influencing customer processes and behaviors. Instructor(s): *Dholakia*

MGMT 708 STRUCTURAL EQUATIONS MODELS (3)**Structural Equations Models**

This course will explore issues related to measurement and hypothesis testing interpretation in management research and the behavioral sciences. Structural equations methodology (also known variously as simultaneous equation systems, path analysis, and causal modeling) will be used as the primary means of analysis, but the course also considers reliability, validity, explanation, prediction, control, and understanding of individual, group, and organizational phenomena. Examples drawn from management, the social sciences, and psychology will be used to illustrate the approaches and concepts examined. An introductory background in probability and statistics, preferable including multiple regression, will be assumed. Prerequisite(s): MGMT 595 and instructor's permission, or STAT 310 or equivalent, STAT 410 or equivalent recommended, or PSYC 502 and PSYC 503, or POLI 502 and POLI 503, or ECON 510 and ECON 511, and graduate standing.

MGMT 710 BUSINESS TO BUSINESS MARKETING (3)**Business to Business Marketing**

The objective of this course is to provide the student with an understanding of the various concepts and tools relevant to the marketing of products in a business-to-business setting.

MGMT 711 APPLIED OPTIMIZATION (1)**Applied Optimization**

Airlines don't schedule without "it" and refineries don't produce gasoline without "it", and Wall Street is investing "it." "It" is optimization. The evolution of powerful micro-computers has brought the application of optimization to the desktop, and industry after industry is exploring ways to take advantage of this family of techniques to reduce cost and increase profitability. Successful line managers need to understand its potential, and analytically inclined MBAs will appreciate its elegance. This course will focus on the application of linear and integer programming techniques to supply chain optimization. Although the application focus will be on supply chain, the successful student will be able to recognize optimization and profit maximization opportunities across many different business contexts. Instructor: *Bixby*

MGMT 713 GLOBAL STRATEGIC MANAGEMENT (3)**Global Strategic Management**

Seeks to provide students with the skills, knowledge and sensitivity required to attain and maintain sustainable competitive advantage within a global environment. Emphasizes a strategic perspective and highlights topics such as global environment analysis, global strategy, global strategic alliances, and the important role of organizational structure and strategic control. Instructor(s): *Zhang*

MGMT 716 DESIGN & CONSTRUCTION PROJECT (3)**Design and Construction Project Delivery Innovation**

Process innovation in the design and construction industries is far to rare. Even with access to powerful tools such as CADD and the Internet, many opportunities for process improvement are overlooked and problems are repeatedly ignored. Within this course, cross-discipline project teams will use contemporary business tools to evaluate long-standing industry practices and develop ideas for process innovation. At the end of the semester, students will present innovation concepts to members of the Project Delivery Innovation Forum, a group of industry leaders that may select student ideas for further research on real projects. Instructor(s): *Barbara White*
Also offered as ARCH 616.

(*) = credit hours per semester

MGMT 720 STR & MNG INTL STRAT ALLIANCES (1)**Structuring and Managing International Strategic Alliances**

This course seeks to provide students with the skills, knowledge, and sensitivity required to structure and manage strategic alliances/joint ventures within a global environment. This course will discuss the following topics: motivations for joining strategic alliances/joint ventures, partner selection, structuring strategic alliances/joint ventures to meet firms' strategic objectives, control and management of alliances/joint ventures, evaluation of performance of alliances/joint ventures, and exiting alliances/joint ventures. Case studies will be used to develop students' capacity to identify issues, to reason carefully through various options and improve students' ability to manage the organizational process by which alliances/joint ventures get formed and executed. We will also read and discuss recent articles from the business press and academic journals. Instructor(s): *Zhang*

MGMT 722 MGMT CONTROL & DESIGN (1)**Management Control and Design**

This course builds on and extends the topics introduced in MGMT 503, Management Control. It is situated at the intersection of strategy and control and will focus on the use and design of control systems to facilitate strategic objectives and achieve business goals. It will begin by taking an in-depth look at the levers of control typology introduced in MGMT 503. The course will examine incentive issues that arise when compensation is linked to diagnostic controls, and whether it facilitates or hinders the achievement of strategic objectives. The course then shifts to examine the presence of strategic risks and how strategic pressures impact the accounting environment. Finally, it will examine how a component of the management control system is used to manage those risks. It will also include the current changes in management control and the requirements now imposed on top executives. Instructor: *Widener*

MGMT 724 STRAT ALLIANCES & JNT VENTURES (1)**Strategic Alliances and Joint Ventures**

In today's world of global markets, rapid technological advancement, and increasing complexity of new products, few companies can successfully compete alone. As such, for industry giants and ambitious start-ups alike, strategic partnerships have become critical. The Strategic Alliance and Joint Ventures course will examine the theory and logic of alliances in value creation as well as exploring the life cycle of an alliance. Instructor(s): *Foote*

MGMT 725 STRAT ALLIANCES & JNT VNTRS II (1)**Strategic Alliances and Joint Ventures II**

This course examines: theory and logic of alliances in value creation, Alliance evolution in various industries, the spectrum of alliance types from a low level of interdependence to a high. The course is discussion based, focusing on reading material, case studies and problem sets. Prerequisite(s): MGMT 724. Instructor(s): *Foote*

MGMT 726 FIXED INCOME PORTFOLIO SIMUL. (2)**Fixed Income Portfolio Simulation**

In this course, students will gain hands-on experience in the challenges and excitement of managing a simulated Fixed Income portfolio (U.S. Treasuries, corporate bonds and mortgages). FIP Sim 'student-managers' will actively learn and utilize the resources of the El Paso Finance Center to set up, research, and manage/trade their simulated portfolios. Each portfolio will consist of securities selected by the 'student manager' from an index in conformance with pre-established investment guidelines - analogous to the real investment management world. Monthly portfolio performance will be calculated and benchmarked against the index. Classroom time will be used for a combination of lectures, speakers, interactive Finance Center activities, and professor/student consultation sessions on investment strategy. This course work will leverage off of material learned in MGMT 651, and to receive credit, you must simultaneously take MGMT 651. Instructor(s): *Foote*

MGMT 730 ADVANCED INVESTMENT MANAGEMENT (3)**Advanced Investment Management**

Advanced theory and practice in investment management, including security analysis, optimal asset allocation for active fund managers, dynamic portfolio insurance programs, arbitrage-free pricing, bond fundamentals and arbitrage, and interest rate swaps and derivatives. Instructor(s): *Wang*

MGMT 732 E-BUSNSS: APP & INFRASTRUCTURE (2)**E-Business: Applications ADN Infrastructure**

Analysis of the technologies and alternative business models for Internet business, including the launch of a new Internet business and Internet extensions of established businesses. We will explore Internet infrastructure components, including the Internet itself, creative and content management tools, Internet application servers, wireless technologies, neutral marketplaces and exchanges, and the integration of these components. Students will study several existing eBusinesses and present their analyses of the strengths and weaknesses of the technologies and business models that are represented. Course not offered 2004-2005.

(F) = Fall; (S) = Spring

MGMT 734 TECH ENTREPRENEURSHIP (3)**Technology Entrepreneurship**

Through exposure to literature on technology entrepreneurship and active involvement with technology entrepreneurs, the student will deepen his/her knowledge of the process of starting, funding, and growing an entrepreneurial company that is based on a science, engineering, software, or e-commerce innovation. Involvement with technology entrepreneurs will be made through the Rice Alliance for Technology and Entrepreneurship (<http://www.alliance.rice.edu/>). Instructor(s): *Curral*

MGMT 737 INVESTOR RELATIONS (2)**Investor Relations**

Students learn theory and practice of investor relations, with emphasis on the role of investor relations/financial communications. Subjects covered include: history of the stock market, formation of the SEC, evolution of SEC regulations, dynamics of the equity markets, the flow of investor information, planning and implementing an investor relations program, fitting investor relations into a corporation's communications program. Students will be mentored by local investor relations practitioners who will serve as real world guides for course assignments. Students will learn specifics about filing with the SEC, the creation of annual reports, road shows, stockholder meetings, preparing financials, and more. Investor relations managers, analysts, and CEOs will serve as guest lecturers to talk about their challenges in today's workplace. Instructor(s): *Wiley*

MGMT 739 SHAREHLDR EMP & CUSTOMER (2)**Delivering Shareholder, Employee, and Customer Value**

The course delivers fundamental concepts of how a company delivers value to its primary stakeholders. Successful business models are examined and analyzed. Successful companies will be examined, primarily in the way of delivering value. The course will highlight what constitutes a good value chain and why. A portion of the course will revolve around the definition of value and the formulation of a "value proposition". A delineation will be made in the formulation of the "value proposition" for companies with different value disciplines. Real examples and case studies will be shared with the students derived from many years of the instructors' consulting experience with internal and external customers in their pursuit to provide satisfaction to all three major stakeholders: Customers, Employees, and Shareholders. Instructor(s): *Merrill, Papadopoulos*

MGMT 741 MANAGING GROWTH (2)**Managing Growth**

Companies are either thought of as small start-ups or large, mature businesses. The small start-up is considered to be the domain of the entrepreneur, where by force of personality, spark of creativity, or bold opportunism, a business is formed *ex nihilo*. On the other extreme, the large business is considered to be the domain of the manager, where by force of scale and scope, imposition of process, and careful analysis, an empire is sustained and expanded. In summary, the focus of the course will be how to create wealth by buying a small business, putting systems and processes in place to create a foundation for future growth, driving growth both internally and externally, and, finally, selling the business. Students will learn to apply those skills to small businesses with growth potential. Instructor: *Linbeck*

MGMT 750 MGMT FOR SCIENTISTS/ ENGINEERS (3)**Management for Scientists and Engineers**

This course is designed for science and engineering students who want to understand the management of new and/or small technology-based businesses. The course is taught in modular format to give students insights into how technology-oriented firms manage intellectual property, marketing, organization behavior, strategy, accounting, and finance. Concepts covered will be particularly relevant to students interested in careers in technology or entrepreneurial ventures. This course is part of a two-class sequence and provides the foundation for students taking NEW VENTURE CREATION for SCIENCE and ENGINEERING, which is offered in the spring. Also offered as CHEM 750 and MSCI 750. Instructor: *Heeley*

MGMT 751 NEW VNTR CREATION SCI & ENG (3)**New Venture Creation for Science and Engineering**

This course deals with the concepts and theories relevant to new venture creation. Our primary focus is the start-up process with particular emphasis being placed on market issues, intellectual property and entrepreneurial finance. As part of the course, we will evaluate the commercial potential of a live technology drawn from the Rice engineering/science community. The concepts covered will be particularly relevant to students who are interested in careers in technology or entrepreneurial ventures. Course is not offered to MBA graduate students. Also offered as CHEM 751 and MSCI 751.

(#) = credit hours per semester

MGMT 752 TECHNOLOGY TRANSFER INTERNSHIP (3)**Technology Transfer Internship**

The Office of Technology Transfer at Rice University has currently established a formal internship program with the Jones Graduate School of Management (JGSM) to provide students exposure and experience with the process of transferring technology discovered in research activities at Rice to commercial activities. The program allows students to work directly with the Office of Technology Transfer. Technology Transfer is the process of facilitating the relationship between academia and industry, allowing ideas to flow or be transferred both ways and resulting in the development of technologies. This benefits the public through introducing new and better products for the improvement of quality of life. The national economy benefits as these technologies mature to grow their own industry and contribute to other sectors of the economy as well. Instructor(s): *Napier, Schuerman*

MGMT 760 HTC INTERNSHIP (3)**Houston Technology Center Internship**

The Houston Technology Center (HTC) is working to enhance Houston's position as a leading city for technology companies and has established a formal internship program with the Jones Graduate School of Management (JGSM) to give students exposure and experience with high-tech companies within Houston. The program allows students to work directly with high-tech companies and with the HTC itself. The program provides Jones school students the chance to apply the knowledge they gain in the classroom to the real world problems which all start-up companies face. Instructor(s): *Napier*.

MGMT 780 EXTENDED LEARNING LAB I (1)**Extended Learning Lab I**

Extended Learning Labs are directed jointly by the four faculty members responsible for any given mini-semester. Their purpose is to apply information from each of that mini-semester's subject areas in practical, real-world setting such as cases, simulations, and communication exercises. Instructor(s): *Staff*

MGMT 781 EXTENDED LEARNING LAB II (1)**Extended Learning Lab II**

Extended Learning Labs are directed jointly by the four faculty members responsible for any given mini-semester. Their purpose is to apply information from each of that mini-semester's subject areas in practical, real-world setting such as cases, simulations, and communication exercises. Instructor(s): *Staff*

MGMT 782 EXTENDED LEARNING LAB III (1)**Extended Learning Lab III**

Extended Learning Labs are directed jointly by the four faculty members responsible for any given mini-semester. Their purpose is to apply information from each of that mini-semester's subject areas in practical, real-world setting such as cases, simulations, and communication exercises. Instructor(s): *Staff*

MGMT 783 EXTENDED LEARNING LAB IV (1)**Extended Learning Lab IV**

Team Dynamics is an applied course where you will utilize proven skills and tools to enhance your individual abilities in teams and to support the successful development and operation of your Executive MBA teams at Rice. Instructor(s): *Kennedy*

MGMT 784 EXTENDED LEARNING LAB V (1)**Extended Learning Lab**

Directed jointly by the four faculty members responsible for any given mini-semester. Their purpose is to apply information from each of that mini-semester subject areas in practical, real-world setting, such as cases, simulations, and communication exercises. Instructor(s): *Staff*

MGMT 785 EXTENDED LEARNING LAB VI (1)**Extended Learning Lab VI**

Team Dynamics is an applied course where you will utilize proven skills and tools, both to enhance your individual abilities in teams and to support the successful development and operation of your Executive MBA teams at Rice. Instructor(s): *Kennedy*

MGMT 786 INTL BUSINESS BRIEFING (1)**International Business Briefing**

An overseas course trip involving intensive meetings with company and commercial bank executives, directors in consulting and investment banking firms, executives in public sector and health care enterprises, and government officials and academics. The objective is to enhance students' appreciation of the opportunities and obstacles to doing business in different parts of the world and to heighten their interest in engaging in global ventures. Instructor(s): *Uecker*.

(F) = Fall; (S) = Spring

MGMT 787 CROSS-CULTURAL ISSUES IN BUS. (1)**Cross-Cultural Issues In Business**

Introduction to cultural business differences and discussion of problems and obstacles to business caused by non-synchronous historical and political viewpoints. Emphasizes management challenges to non-American and multicultural environments where values, practices, negotiation styles, concepts of time and methods of communication are dissimilar. Instructor(s): *Lesnick, Currall*

MGMT 790 EXTENDED LEARNING LAB VII (1)**Extended Learning Lab VII**

Extended Learning Labs are directed jointly by the four faculty members responsible for any given mini-semester. Their purpose is to apply information from each of that mini-semester's subject areas in practical, real-world setting such as cases, simulations, and communication exercises. Instructor(s): *Staff*

MGMT 791 EXTENDED LEARNING LAB VIII (1)**Extended Learning Lab VIII**

Extended Learning Labs are directed jointly by the four faculty members responsible for any given mini-semester. Their purpose is to apply information from each of that mini-semester's subject areas in practical, real-world setting such as cases, simulations, and communication exercises. Instructor(s): *Staff*

MGMT 792 EXTENDED LEARNING LAB IX (1)**Extended Learning Lab IX**

Team Dynamics is an applied course where you will utilize proven skills and tools, both to enhance your individual abilities in teams and to support the successful development and operation of your Executive MBA teams at Rice. Instructor(s): *Kennedy*

MGMT 793 EXTENDED LEARNING LAB X (1)**Extended Learning Lab X**

Extended learning labs are directed jointly by the four faculty members responsible for any given mini-semester. Their purpose is to apply information from each of that mini-semester's subject areas in practical, real-world settings such as cases, simulations, and communication exercises. Instructor(s): *Staff*

MGMT 794 EXTENDED LEARNING LAB XI (1)**Extended Learning Lab XI**

Extended Learning Labs are directed jointly by the four faculty members responsible for any given mini-semester. Their purpose is to apply information from each of that mini-semester's subject areas in practical, real-world settings such as cases, simulations, and communication exercises. Instructor(s): *Staff*

MGMT 800 INDEPENDENT STUDY (HOURS VARIABLE)**Independent Study**

No description. Instructor(s): *Staff*

MGMT 801 FINANCIAL ACCOUNTING (2)**Financial Accounting**

Preparation of financial statements, financial reporting framework and financial accounting techniques. Instructor(s): *Nelson*

MGMT 802 COST MANAGEMENT (1)**Cost Management**

Provides general managers with an understanding of the design and function of a firm's management accounting system to enable them to become active consumers of accounting information. The course describes how accounting information can assist managers in making decisions about products, services, and customers; improving existing processes; and aligning organizational activities toward long-term strategic objectives. Instructor(s): *Anderson*

MGMT 807 LEADERSHIP (1)**Leadership**

Covers key elements of sound leadership theory and practice in organizational settings. Instructor(s): *Windsor*.

MGMT 810 LEADING ORGANIZATIONS (1)**Leading Organizations**

This course is designed to further students' leadership skills by providing an assessment of their leadership competencies. This assessment will be used to focus participants' leadership development efforts. Additionally, the course will cover the common causes of executive derailment, critical competencies for effective leadership, leadership as coaching, leading decision-making in teams, and making change. Instructor(s): *Smith*

(*) = credit hours per semester

MGMT 811 CHANGE MANAGEMENT (1)**Change Management**

Examination of practical challenges in planning and in implementing organizational change. Topics include organizational transformation, continuous change, choices in organizational change initiatives, leadership of organizational change and transformation at different organizational levels, and motivation and resistance around change efforts. Instructor(s): *Kehoe*

MGMT 830 INFORMATION TECHNOLOGY (1)**Information Technology**

The role and impact of information technology (IT) in organizations, strategic uses of IT, the internet and electronic commerce, outsourcing versus in sourcing of IT activities, technology directions and management of the IT function. Instructor(s): *Gorry*

MGMT 835 MNGNG KNWLDG IN THE INFO AGE (1)**Managing Knowledge in the Information Age**

People processes and technology. Technology for managing knowledge. New organizational models. Instructor(s): *Gorry*

MGMT 840 MANAGERIAL ECONOMICS (1)**Managerial Economics**

Part I of the course first covers the basics of consumer demand and then focuses on the relevant costs in making production and pricing decisions, with an emphasis on seeking economics rather than accounting profit. Part II explores incentive problems in decision-making within firms and studies the relation between decision rights, compensation, and performance evaluation in productive organizational design. Instructor(s): *Paye*

MGMT 841 ECONOMIC ENVIR OF BUSINESS (1)**Economic Environment of Business**

Examination of the global economic environment that serves as a backdrop for business decision making, with emphasis on the key macroeconomic policy goals and tools and how they affect exchange rates, interest rates, business cycles, and long-term economic growth. Instructor(s): *Ostdiek*

MGMT 843 CORPORATE FINANCIAL MANAGEMENT (2)**Corporate Financial Management**

Capital budgeting, risk and return, cost of capital, EVA concept, capital asset pricing model, time value of money, net present value, and internal rate of return. Instructor(s): *Underwood*

MGMT 860 BUSINESS ETHICS (1)**Business Ethics**

Moral obligations of firms and managers. Instructor(s): *Windsor*

MGMT 861 BUSINESS GOVERNMENT RELATIONS (1)**Business-Government Relations**

The course exposes students to the governmental institutions that surround the business environment. Strategies for influencing and responding to governmental actors are explored as well as other issues related to business-government relations. Instructor(s): *Staff*

MGMT 865 GLOBALIZATION OF BUSINESS (1)**Globalization of Business**

This course examines the increasing importance of trade and the global economy to U.S. business. It focuses first on the industrial winners and losers of free trade and protectionism, and then examines the major laws and agencies governing trade between the U.S. and her industrial competitors. Finally, the course examines current issues and challenges for foreign investment in some of the most important markets for U.S. firms such as Japan and China. Instructor(s): *Schuler*

MGMT 870 COMPETITIVE STRATEGY (1)**Competitive Strategy**

Systematic examination of models and techniques used to analyze a competitive situation within an industry from a strategic perspective. Examines the role of key players in competitive situations and the fundamentals of analytical and fact oriented strategic reasoning. Examples of applied competitive and industry analysis are emphasized. Instructor(s): *Cording*

MGMT 871 STRGY FORMULATION AND IMPLEM (1)**Strategy Formulation and Implementation**

This course focuses on formulating and implementing effective organizational strategy, including competitive positioning, core competencies and competitive advantage, cooperative arrangements, and tools for implementation. Instructor(s): *Staff*

(F) = Fall; (S) = Spring

MGMT 874 TECH AND OPERATIONS MGMT (1)**Technology and Operations Management**

Introduction to the design and improvement of operations, including manufacturing technologies, quality management and control, and organizational issues in operations. Instructor(s): *Lee*.

MGMT 880 MARKETING (2)**Marketing**

Introduction to the key concepts underlying the function of marketing in a business enterprise. Includes lectures and an extensive analysis of marketing management cases. Instructor(s): *Westbrook*

MGMT 884 BRAND MANAGEMENT (1)**Brand Management**

Application of various dimensions of marketing strategy and management to the role of the product manager responsible for all marketing activities of a given product. Instructor(s): *Perkins*

MGMT 895 DATA ANALYSIS (2)**Data Analysis**

The ever-increasing capacity of computers to analyze data, and the explosion of the amount of data available, has resulted in an increased role for data analysis as an aid to business decision-making. This course exposes the student to the most important ideas and method relevant for data analysis in a business context. Emphasizing practical applications to real problems, the course covers the following topics: Sampling, Descriptive Statistics, Probability Distributions, and Regression Analysis. Instructor(s): *Batsell*

MGMT 896 LEADERSHIP COMMUNICATION (1)**Leadership Communication**

This course is an introduction to corporate communication strategy and global communication, with individual and team-based instruction in both written and oral communications. Instructor(s): *O'Sullivan, Hampton*

MGMT 901 FINANCIAL STATEMENT ANALYSIS (2)**Financial Statement Analysis**

Study of how investors, financial analysts, creditors, and managers use financial statement information in evaluating firm performance and in valuing firms. Emphasizes industry and firm-level analysis of accounting information using financial accounting concepts and finance theory. Instructor(s): *Dharan*.

MGMT 909 NEGOTIATION (1)**Negotiation and Conflict Resolution**

Development of analytical and behavioral skills for resolving conflict and negotiating successfully in a business context. Topics include analysis of your negotiation counterpart, adversarial versus cooperative bargaining, influence tactics, and ethics. Instructor(s): *Currall*

MGMT 911 ORGANIZATIONAL ARCHITECTURE (1)**Organizational Architecture and Competitive Advantage**

Study of effective organizational design, with a focus on costs and benefits as well as on increasing performance. Instructor(s): *Weigelt, Keboe*

MGMT 927 ENTREPRENEURSHIP: ENTRPRS EX (2)**Entrepreneurship: Enterprise Exchange**

The needs approach to buying and selling businesses. Enterprise valuation, deal and contract structuring. Leveraged buyouts and consolidating fragmented industries. Economics and financing. Instructor(s): *Napier, Williams*

MGMT 947 CORPORATE FINANCE (1)**Corporate Finance**

Capital structure, stockholder distributions, agency issues. Instructor(s): *Wang*

MGMT 948 ECONOMIC INCENTIVES & ORGS (1)**Economic Incentives and Organizations**

This course deals with incentive conflicts within organizations and how they affect shareholder value. A framework is presented for constructing a productive organizational architecture that assigns design rights to the appropriate employees, evaluates appropriately their efforts, and rewards them based on performance. Instructor(s): *Weston*

MGMT 950 FINANCIAL RISK MANAGEMENT (1)**Financial Risk Management**

The basics of futures and options, as well as real options and use of derivatives to hedge risk. Instructor(s): *Fleming*

MGMT 952 MERGERS AND ACQUISITIONS (1)**Mergers and Acquisitions**

Motivation, valuation, and strategy in the process of merging established businesses or evaluating/acquiring other enterprises. Instructor(s): *Grullon*

(#) = credit hours per semester

MGMT 957 INTERNATIONAL FINANCE (1)**International Finance**

Exploration of issues encountered in international financial arenas, including foreign exchange rate risk management, capital budgeting for international projects, and international financing strategies. Instructor(s): *Watanabe*.

MGMT 961 BUSINESS LAW (1)**Business Law**

Contracts, employment law, product liability, and foreign corrupt practices act. Instructor(s): *Stuart*

MGMT 970 STRGY PLANNING & CREATIVITY (1)**Strategy Planning and Creativity**

Controlling and evaluating effectiveness. Action planning scenario creation and planning. Instructor(s): *Taylor*

MGMT 982 ADVERTISING AND PROMOTION (1)**Advertising and Promotion**

This course will take an Integrated Marketing Communications (IMC) approach to the development, implementation, and control for advertising and promotion programs. We will examine the role of IMC in marketing and discuss how to develop, monitor, and evaluate advertising, sales, promotion, direct marketing, public relations, and other types of non-traditional marketing communication programs. Instructor(s): *Yoon*

MGMT 985 GLOBAL LEADERSHIP (1)**Global Leadership**

Leadership challenges, skills and strategies in the global context. Cross-cultural differences in characteristics of followership, values, information-processing styles, interpersonal relationships, group dynamics and many other areas. Implications of these differences for employee attitudes and behavior, and for leadership effectiveness in the workplace. Scientifically-proven course material and dynamic, interactive teaching style. Instructor(s): *Zhou*

MGMT 986 MARKETING RESEARCH (1)**Marketing Research**

The objectives of the course are: to familiarize you with the marketing research process, alternative research designs and data collection techniques; to develop capabilities in designing and executing studies appropriate for a particular problem; and to provide skills for using and understanding various data analysis procedures for survey and experimental data. Instructor(s): *Seetharaman*

MILI (MILITARY SCIENCE)**No College Designated/Military Science****MILI 106 ADV PHYSICAL FITNESS COURSE (1)****Advanced Physical Fitness Course**

Physically demanding. Develops skills through team competition. Land navigation, assembly/disassembly of weapon, tactics, assembly of one-man rope bridge. Students are also required to attend fitness training 5 times a week. Participants compete for Ranger Challenge slots. Selected cadets compete against other teams at the annual Ranger Challenge competition. Prerequisite(s): must be ROTC cadet.

MILI 109 PHYSICAL FITNESS TRAINING (1)**Physical Fitness Training**

Open to all students. Utilizes Army fitness techniques; develops strength, flexibility and endurance; develops self-confidence through leadership training and physical activities.

MILI 121 INTRODUCTION TO ROTC (2)**Introduction to ROTC**

Learn fundamental concepts of leadership in both classroom and outdoor laboratory environments. Increase self-confidence through team study and activities in basic drill, physical fitness, rappelling, first aid and basic marksmanship. Develop communication skills to improve individual performance and group interaction. One hour classroom session and a required lab. No military commitment is required for attending this course.

MILI 122 INTRODUCTION TO LEADERSHIP (2)**Introduction to Leadership**

Learn and apply principles of effective leadership. Reinforce self-confidence through participation in physically and mentally challenging training with upper division ROTC students. Develop communications skills to improve individual performance and group interaction. Relate ethical values to the effectiveness of a leader. Includes training on survival skills and self-defense. One hour classroom session and a required lab. No military commitment is required for attending this course.

(F) = Fall; (S) = Spring

MILI 123 LEADERSHIP LAB (0)**Leadership Lab****MILI 201 MILITARY LEADERSHIP DEVELOPMENT (2)****Military Leadership Development**

Characteristics of leadership, problem analysis, decision making, oral presentations, first aid, small unit tactics, land navigation, basic radio communication, marksmanship, fitness training, rappelling. Fitness training required two times per week in addition to class and lab.

MILI 202 MILITARY LEADERSHIP DEVELOPMENT (2)**Military Leadership Development**

Continuation of MILI 201.

MILI 203 LEADERSHIP LABORATORY (0)**Leadership Laboratory****MILI 281 LEADER TRAINING COURSE (LTC) (8)****Leader Training Course (LTC)**

Four week off campus field training practicum. Introduces students to the Army and Leadership. Prerequisite(s): Approval of the Department chair. No military obligation is associated with this course.

MILI 301 ADVANCED MILITARY SCIENCE (3)**Advanced Military Science**

Leadership training, preparing combat orders, military instruction principles, small unit tactics, and tactical communications. Course is designed to prepare students for Leader Development Assessment Course (LDAC). In addition to class, students must attend lab and fitness training.

MILI 302 ADVANCED MILITARY SCIENCE (3)**Advanced Military Science**

Continuation of MILI 301.

MILI 304 LEADERSHIP LABORATORY (0)**Leadership Laboratory****MILI 349 LEADER DEVELOPMENT ASSESSMENT (8)****Leader Development Assessment Course (LDAC)**

Off campus field training practicum stressing application of leadership management with emphasis on tactical and special military skills. Prerequisite(s): MILI 302 or consent of Department chair.

MILI 398 SPECIAL PROBLEMS (3)**Special Problems**

Prerequisite(s): Junior standing and consent of department chair.

MILI 401 ADVANCED MILITARY SCIENCE (3)**Advanced Military Science**

Leadership and command, military law, administrative/staff operations and procedures, dynamics of the military team, training management, ethics and professionalism. In addition to class, students must attend lab and physical fitness training.

MILI 402 ADVANCED MILITARY SCIENCE (3)**Advanced Military Science**

Continuation of MILI 401.

MILI 403 LEADERSHIP LABORATORY (0)**Leadership Laboratory****MILI 439 SPECIAL PROBLEMS (3)****Special Problems**

Prerequisite(s): Senior standing and consent of Department chair.

MSCI (MATERIALS SCIENCE)**School of Engineering/Mech Engineer and Materials Sci****MSCI 301 MATERIALS SCIENCE (3)****Materials Science**

Introduction to the science of solid materials. Includes metals, ceramics, plastics, and semiconductors, as well as the properties of solid materials from atomic and macroscopic points of view. Required for mechanical engineering and materials science and engineering majors. Instructor(s): *Brtozen or Barrera*

(#) = credit hours per semester

MSCI 303 MATERIALS SCIENCE JUNIOR LAB (1)**Materials Science Junior Lab**

Selected lab experiments in materials science. Open only to junior materials science and engineering majors. Required for materials science and engineering majors. At the start of the semester, please check with the Department of Mechanical Engineering and Materials Science for the time and location of the organizational meeting for the course. Instructor(s): *Staff*

MSCI 304 APPLIED MATERIALS ENGINEERING (1)**Applied Materials Engineering**

Practical application of the basic principles of materials science. Includes case studies of failures under a variety of conditions, as well as topics in the fabrication and heat treatment of metallic materials. Instructor(s): *Cunningham*

MSCI 311 INTRODUCTION TO DESIGN (4)**Introduction to Design**

Introduction of fundamental aspects of design through semester-long group projects. Open to nonmajors only with permission of instructor. Required for materials science and engineering majors. Instructor(s): *Barrera*

MSCI 401 TRANSPORT PHENOMENA IN MAT SCI (4)**Thermodynamics and Transport Phenomena in Materials Science**

Unified presentation of the kinetics and thermodynamics of mass and energy transport. Includes heterogeneous equilibrium, diffusion in solids, and heat transfer, as well as their application to engineering design. Required for materials science and engineering majors. Instructor(s): *McLellan*

MSCI 402 MECH PROPERTIES OF MATERIALS (3)**Mech Properties of Materials**

Survey of the mechanical properties of solid materials. Includes basic mechanics, elasticity, plasticity, fracture, fatigue, creep, hardening mechanisms, mechanical testing, and structure-property relationships. Required for materials science and engineering majors. Prerequisite(s): MATH 211 Instructor(s): *Barrera or Brotzen*

MSCI 404 MATERIALS ENGINEERING & DESIGN (4)**Materials Engineering and Design**

Exploration of technological aspects of materials selection, design, failure, and analysis. Lab time spent in an industrial setting. Open to nonmajors only with permission of instructor. Required for materials science and engineering majors. Instructor(s): *Cunningham*

MSCI 406 PHYSICAL PROPERTIES OF SOLIDS (3)**Physical Properties of Solids**

Survey of the electrical, magnetic, and optical properties of metals, semiconductors, and dielectrics based upon elementary band theory concepts. Required for materials science and engineering majors. Not offered every year. Prerequisite(s): MATH 211 Instructor(s): *Yakobson*

MSCI 411 METALLOGRAPHY & PHASE RELATIONS (3)**Metallography and Phase Relations**

Study of microstructures that may be observed in metals and alloys, optical metallography (in addition to more sophisticated techniques), and the relationships between structural properties and failures. Required for materials science and engineering majors. Prerequisite(s): MSCI 301. Instructor(s): *McLellan*

MSCI 415 CERAMICS AND GLASSES (3)**Ceramics and Glasses**

Fundamentals of ceramic and glassy materials, including phase relations, theoretical properties, structure, bonding, and design. Instructor(s): *Staff*

MSCI 500 MATERIALS SCIENCE SEMINAR (0)**Materials Science Seminar**

A series of seminars on selected topics in Materials Science. Required for materials science and engineering majors. Course may be repeated for credit. Instructor(s): *Staff*

MSCI 501 MATERIALS SCIENCE SEMINAR (1)**Materials Science Seminar**

See MSCI 500. Required for materials science and engineering majors. Instructor(s): *Staff*

MSCI 510 COMPUTATIONAL NANOMECHANICS (3)**Computational Nanomechanics**

Fundamentals of mechanical properties in nanometer scale. Role of discrete structure, underlying atomic, molecular and interfacial forces is illustrated with modern examples. Includes overview of computational modeling methods with the emphasis on multi-scale physics. Accessible for senior undergraduates. Prerequisite(s): Consent of instructor. Instructor(s): *Yakobson*

(F) = Fall; (S) = Spring

MSCI 523 DESIGN OF COMPOSITE MATERIALS (3)**Properties, Synthesis, and Design of Composite Materials**

Study of the science of interfaces and the properties that govern their use in composite materials. Not offered every year. Instructor(s): *Staff*

MSCI 535 CRYSTALLOGRAPHY & DIFFRACTION (3)**Crystallography and Diffraction**

Study of crystals by x-ray and electron diffraction and electron microscopy. Includes basic diffraction theory and methods for characterization of structure and the constitution of materials. Required for materials science and engineering majors. Instructor(s): *Staff*

MSCI 537 MATERIALS SCIENCE SENIOR LAB (1)**Materials Science Senior Lab**

Selected lab experiments in materials science. Required for materials science and engineering majors. Prerequisite(s): MSCI 303 Instructor(s): *Staff*

MSCI 561 ADV METALLURGICAL LAB I (1)**Advanced Metallurgical Lab I**

Students whose interest lies primarily in the field of materials and metallurgy are given the opportunity for research in these fields. Prerequisite(s): Permission of the instructor. Instructor(s): *Staff*

MSCI 569 CORROSION SCI & ENG'G (3)**Corrosion Science and Engineering**

Survey of surface activity and corrosion processes on metals, semiconductors, and insulating materials. Survey of the principles and theories of corrosion, corrosion testing, and the selection of materials for corrosion prevention. Not offered every year. Prerequisite(s): MSCI 301 Instructor(s): *Staff*

MSCI 570 SENIOR DESIGN THESIS PROJECT (2)**Senior Design Thesis Project**

A design project in the materials science field will be undertaken by the student in close collaboration with at least one materials science faculty member. Instructor(s): *Staff*

MSCI 571 SENIOR DESIGN THESIS PROJECT (2)**Senior Design Thesis Project**

A design project in the materials science field will be undertaken by the student in close collaboration with at least one materials science faculty member. Instructor(s): *Staff*

MSCI 593 POLYMER SCIENCE & ENGINEERING (3)**Polymer Science and Engineering**

Basic concepts in macromolecular chemistry and their application in the synthesis and chemical modification of polymers. Also offered as CENG 593. Prerequisite(s): CHEM 211, 212. Instructor(s): See CENG 593

MSCI 594 PROPERTIES OF POLYMERS (3)**Properties of Polymers**

Study of the molecular organization and physical properties of polymeric materials. Includes elastomeric, semi-crystalline, and glassy polymers, as well as the processing and technology of polymeric systems. Also listed as CENG 594. Instructor(s): See CENG 594

MSCI 596 CHEM OF ELECTRONIC MATERIALS (3)**Chemistry of Electronic Materials**

A review of the chemical processes involved in the manufacture of microelectronic chips, including: crystallization, purification, oxidation, thin film methods, lithography and ceramic processing. Usually alternates with CHEM 595. Open to undergraduates by special permission only. Also offered as CHEM 596. Instructor(s): *Staff*

MSCI 603 TECH MANGMNT FOR SCI & ENGR (3)**Technology Management for Scientists and Engineers**

This course is intended for graduate students in science and engineering who are interested in gaining an understanding of the business of technology. Particular emphasis is placed on the financial and human resources management, business strategy, patents, trademarks, and licenses, as well as new business start-up and development. Also offered as CHEM 603 Instructor(s): See CHEM 603

MSCI 609 FRACTURE MECHANICS (3)**Fracture Mechanics**

Topics on the theory of linear and nonlinear fracture mechanics. Energetics of fracture, the J-integral, stress and strain fields near crack tips, R-curve behavior. Also listed as MECH 518. Instructor(s): *Landis*

(*) = credit hours per semester

MSCI 610 CRYSTAL THERMODYNAMICS (3)**Crystal Thermodynamics**

Discussion of potentials and third-order elastic constants. Includes the lattice dynamics of harmonic phonons and an harmonic perturbation expansion, as well as the contribution of electrons to the thermodynamics quantities. Not offered every year. Instructor(s): *Yakobson*

MSCI 611 INDEPENDENT STUDY (HOURS VARIABLE)**Independent Study**

No description. Instructor(s): *Staff*

MSCI 612 INDEPENDENT STUDY (HOURS VARIABLE)**Independent Study**

No Description. Instructor(s): *Staff*

MSCI 614 PRIN OF NANOSCALE MECHANICS (2)**Special Topics**

Topics may vary. Please consult with the department for additional information. Instructor(s): *Yakobson*

MSCI 615 SPECIAL TOPICS (HOURS VARIABLE)**Special Topics**

Topics may vary. Please consult with the department for additional information. Instructor(s): *Staff*

MSCI 621 MMS RESEARCH PROJECT 1 (3)**MMS Research Project 1**

This is the first part of the MME research project course. The faculty advisor, taking into account the background and research interests of the student as well as the research interests of the faculty advisor, will determine the contents. Course requirements will include a final report. Instructor(s): *Staff*

MSCI 622 MMS RESEARCH PROJECT II (3)**MMS Research Project II**

This is the second part of the M.M.E. research project and continuation of MECH 621. Course requirements will include a final report. Instructor(s): *Staff*

MSCI 623 SPECTROSCOPY: TOOLS IN MAT SCI (3)**Analytical Spectroscopies: Tools in Materials Science**

Exploration of concepts in vacuum technology, thin film metallization, x-ray photoelectron spectroscopy, Auger electron spectroscopy, and x-ray absorption fine structure. Includes lab sessions on XPS and EXAFS analysis. Not offered every year. Prerequisite(s): MSCI 402, 535, or equivalent. Instructor(s): *Staff*

MSCI 634 THERMODYNAMICS OF ALLOYS (3)**Thermodynamics of Alloys**

Examinations of relations between classical thermodynamics and statistical mechanics as applied to an understanding of solid and liquid alloys. Includes solid-solid, liquid-solid, and gas-solid equilibriums in metallurgy. Not offered every year. Instructor(s): *McLellan*

MSCI 635 TRANSFORMATION IN ALLOYS (3)**Transformation in Alloys**

Study of diffusion in metals and alloys. Includes the mechanism and phenomenology of diffusion-controlled transformations, precipitation from saturated alloys and liquid solutions, and transformations in heat-treated alloys. Not offered every year. Instructor(s): *McLellan*

MSCI 645 THIN FILMS (3)**Thin Films**

Exploration of materials issues relevant to thin films. Includes techniques for vapor phase deposition of thin films (e.g., evaporation, sputtering, and chemical vapor deposition), epitaxy, generation of thin film defects, strain, growth anisotropy, and grain structure, as well as electrical, optical, and magnetic properties of thin film materials and structures. Also offered as ELEC 645. Instructor(s): *Staff*

MSCI 666 CONDUCTION PHENOMENA IN SOLIDS (3)**Conduction Phenomena in Solids**

Survey of fundamental aspects of electron and energy transport in conductors, semiconductors, and insulators. Not offered every year. Prerequisite(s): MSCI 406 or equivalent. Instructor(s): *Brotzen*

(F) = Fall; (S) = Spring

MSCI 750 MGMT FOR SCIENTISTS & ENGINEER (3)**Management for Scientists and Engineers**

This course is designed for science and engineering students who want to understand the management of new and/or small technology based businesses. The course is taught in modular format to give students insights into how technology oriented firms manage intellectual property, marketing, organization behavior, strategy, accounting and finance. Concepts covered will be particularly relevant to students interested in careers in technology or entrepreneurial ventures. This course is part of a two- class sequence and provides the foundation for students taking "NEW VENTURE CREATION for SCIENCE and ENGINEERING" which is offered in the spring. Also offered as CHEM 750 and MGMT 750. Instructor(s): See CHEM 750

MSCI 751 NEW VENTURE FOR SCI & ENGR (3)**New Venture Creation for Science and Engineering**

This course deals with the concepts and theories relevant to new venture creation. Our primary focus is the start-up process with particular emphasis being placed on market issues, intellectual property and entrepreneurial finance. As part of the course we will evaluate the commercial potential of a live technology drawn from the Rice engineering/science community. The concepts covered will be particularly relevant to students who are interested in careers in technology or entrepreneurial ventures. Course is offered to senior and graduate students. Also offered as CHEM 751 and MGMT 751. Instructor(s): See CHEM 751.

MUSI (MUSIC)**School of Music/Music****MUSI 117 FUNDAMENTALS OF MUSIC I (3)****Fundamentals of Music I**

For nonmusic majors with minimal music preparation. Rudiments of pitch and duration. Study of scales, chord structure, tonality, and forms. Enrollment limited to 20.

MUSI 141 CLASSICAL GUITAR/NONMAJOR (2)**Classical Guitar/Nonmajor**

Private instruction on guitar. Must register with the Shepherd School and the Registrar's Office by the second week of classes. Enrollment limited to 20. Prerequisite(s): Need written permission of instructor.

MUSI 151 FLUTE FOR NONMAJORS (2)**Flute for Nonmajors**

Must register with the Shepherd School and the Registrar's Office by the second week of classes. Prerequisite(s): Need written permission of instructor.

MUSI 153 OBOE FOR NONMAJORS (2)**Oboe for Nonmajors**

Must register with the Shepherd School and the Registrar's Office by the second week of classes. Prerequisite(s): Need written permission of instructor.

MUSI 155 CLARINET FOR NONMAJORS (2)**Clarinet for Nonmajors**

Must register with the Shepherd School and the Registrar's Office by the second week of classes. Prerequisite(s): Need written permission of instructor.

MUSI 157 BASSOON FOR NONMAJORS (2)**Bassoon for Nonmajors**

Must register with the Shepherd School and the Registrar's Office by the second week of classes. Prerequisite(s): Need written permission of instructor.

MUSI 161 HORN FOR NONMAJORS (2)**Horn for Nonmajors**

Must register with the Shepherd School and the Registrar's Office by the second week of classes. Prerequisite(s): Need written permission of instructor.

MUSI 163 TRUMPET FOR NONMAJORS (2)**Trumpet for Nonmajors**

Must register with the Shepherd School and the Registrar's Office by the second week of classes. Prerequisite(s): Need written permission of instructor.

MUSI 165 TROMBONE FOR NONMAJORS (2)**Trombone for Nonmajors**

Must register with the Shepherd School and the Registrar's Office by the second week of classes. Prerequisite(s): Need written permission of instructor.

(#) = credit hours per semester

MUSI 167 TUBA FOR NONMAJORS (2)**Tuba for Nonmajors**

Must register with the Shepherd School and the Registrar's Office by the second week of classes. Prerequisite(s): Need written permission of instructor.

MUSI 171 PERCUSSION-NONMAJORS (2)**Percussion for Nonmajors**

Must register with the Shepherd School and the Registrar's Office by the second week of classes. Prerequisite(s): Need written permission of instructor.

MUSI 173 VOICE FOR NONMAJORS (2)**Voice for Nonmajors**

Must register with the Shepherd School and the Registrar's Office by the second week of classes. Enrollment limited to 20. Prerequisite(s): Need written permission of instructor.

MUSI 181 PIANO FOR NON-MAJORS (2)**Piano for Nonmajors**

Must register with the Shepherd School and the Registrar's Office by the second week of classes. Enrollment limited to 20. Prerequisite(s): Need written permission of instructor.

MUSI 183 ORGAN FOR NONMAJORS (2)**Organ for Nonmajors**

Must register with the Shepherd School and the Registrar's Office by the second week of classes. Prerequisite(s): Need written permission of instructor.

MUSI 187 HARP FOR NONMAJORS (2)**Harp for Nonmajors**

Must register with the Shepherd School and the Registrar's Office by the second week of classes. Prerequisite(s): Need written permission of instructor.

MUSI 191 VIOLIN FOR NONMAJORS (2)**Violin for Nonmajors**

Must register with the Shepherd School and the Registrar's Office by the second week of classes. Prerequisite(s): Need written permission of instructor.

MUSI 193 VIOLA FOR NONMAJORS (2)**Viola For Nonmajors**

Must register with the Shepherd School and the Registrar's Office by the second week of classes. Prerequisite(s): Need written permission of instructor.

MUSI 195 VIOLONCELLO FOR NONMAJORS (2)**Violoncello for Nonmajors**

Must register with the Shepherd School and the Registrar's Office by the second week of classes. Prerequisite(s): Need written permission of instructor.

MUSI 197 DOUBLE BASS FOR NONMAJORS (2)**Double Bass for Nonmajors**

Must register with the Shepherd School and the Registrar's Office by the second week of classes. Prerequisite(s): Need written permission of instructor.

MUSI 211 THEORY I (3)**Theory I**

For music majors. Intensive study of the fundamentals of pitch, rhythm, and timbre.

MUSI 212 THEORY II (3)**Theory II**

For music majors. Harmony and voice-leading in Baroque and Classical Eras.

MUSI 222 MEDIEVAL AND RENAISSANCE ERAS (3)**Medieval and Renaissance Eras**

Introduction to the study of Western music history, with emphasis on music before 1600. Score reading ability required. Also offered as MDST 222. Prerequisite(s): MUSI 211 or MUSI 317 or permission of instructor.

MUSI 231 AURAL SKILLS & PERFORM TECH I (2)**Aural Skills and Performance Technique I**

Preliminary studies in ear-training, sight-singing, and dictation.

(F) = Fall; (S) = Spring

MUSI 232 AURAL SKILLS & PERF TECH II (2)**Aural Skills and Performance Technique II**

Continuation of MUSI 231.

MUSI 236 MUSIC HISTORY THROUGH TECHNOLO (3)**Music History Through Technology**

An exploration of music history and literature combined with the history and development of science and technology.

MUSI 251 SECONDARY FLUTE (2)**Secondary Flute**

Secondary Flute. Prerequisite(s): Need written permission of instructor.

MUSI 253 SECONDARY OBOE (2)**Secondary Oboe**

Secondary Oboe. Prerequisite(s): Need written permission of instructor.

MUSI 255 SECONDARY CLARINET (2)**Secondary Clarinet**

Secondary Clarinet. Prerequisite(s): Need written permission of instructor.

MUSI 257 SECONDARY BASSOON (2)**Secondary Bassoon**

Secondary Bassoon. Prerequisite(s): Need written permission of instructor.

MUSI 261 SECONDARY HORN (2)**Secondary Horn**

Secondary Horn. Prerequisite(s): Need written permission of instructor.

MUSI 263 SECONDARY TRUMPET (2)**Secondary Trumpet**

Secondary Trumpet. Prerequisite(s): Need written permission of instructor.

MUSI 265 SECONDARY TROMBONE (2)**Secondary Trombone**

Secondary Trombone. Prerequisite(s): Need written permission of instructor.

MUSI 267 SECONDARY TUBA (2)**Secondary Tuba**

Secondary Tuba. Prerequisite(s): Need written permission of instructor.

MUSI 271 SECONDARY PERCUSSION (2)**Secondary Percussion**

Secondary Percussion. Prerequisite(s): Need written permission of instructor.

MUSI 273 SECONDARY VOICE (2)**Secondary Voice**

Secondary Voice. Prerequisite(s): Need written permission of instructor.

MUSI 281 SECONDARY PIANO (2)**Secondary Piano**

Secondary Piano. Fall offerings: Level 1 offered MWF 12:00-12:50, TR 9:25-10:40. Level 3 offered MWF 8:00-8:50, MWF 10:00-10:50, TR 8-9:15. Spring offerings: Level 2 offered MWF 1-1:50, TR 9:25-10:40. Level 4 offered MWF 8-8:50, MWF 10-10:50; TR 8:00-9:15.

MUSI 283 SECONDARY ORGAN (2)**Secondary Organ**

Secondary Organ. Prerequisite(s): Need written permission of instructor.

MUSI 285 SECONDARY HARPSICHORD (2)**Secondary Harpsichord**

Secondary Harpsichord. Prerequisite(s): Need written permission of instructor.

MUSI 287 SECONDARY HARP (2)**Secondary Harp**

Secondary Harp. Prerequisite(s): Need written permission of instructor.

MUSI 291 SECONDARY VIOLIN (2)**Secondary Violin**

Secondary Violin. Prerequisite(s): Need written permission of instructor.

(#) = credit hours per semester

MUSI 293 SECONDARY VIOLA (2)

Secondary Viola

Secondary Viola. Prerequisite(s): Need written permission of instructor.

MUSI 295 SECONDARY VIOLONCELLO (2)

Secondary Violoncello

Secondary Violoncello. Prerequisite(s): Need written permission of instructor.

MUSI 297 SECONDARY DOUBLE BASS (2)

Secondary Double Bass

Secondary Double Bass. Prerequisite(s): Need written permission of instructor.

MUSI 303 UNDERGRAD COMPOSITION SEMINAR (1)

Undergrad Composition Seminar

For music majors.

MUSI 305 COMPOSITION ELECTIVE (3)

Composition Elective

For music majors. Prerequisite(s): Need written permission of instructor.

MUSI 307 COMPOSITION-NONMAJORS (3)

Composition-Nonmajors

Creative composition employing 20th and 21st century vocabularies. Prerequisite(s): Permission of instructor. Enrollment limited to 10.

MUSI 311 THEORETICAL STUDIES III (3)

Theoretical Studies III

An examination of music from the Classical Era through the late Nineteenth Century, with particular focus on phrase structure, form and chromatic harmony.

MUSI 312 THEORETICAL STUDIES IV (3)

Theoretical Studies IV

Analysis of music since 1900.

MUSI 317 THEORY FOR NONMAJORS I (3)

Theory For Nonmajors I

Study of harmony, melody, rhythm, and form. For non-music majors. Approval of instructor is required. Enrollment limited to 20.

MUSI 318 THEORY-NON MAJORS II (3)

Theory-Nonmajors II

For non-music majors. Continuation of MUSI 317. Enrollment is limited to 20. Prerequisite(s): MUSI 317 or equivalent.

MUSI 321 BAROQUE & EARLY CLASSICAL ERAS (3)

Baroque and Early Classical Eras

Advanced historical studies in music of the seventeenth and eighteenth centuries. Score reading ability required. Prerequisite(s): MUSI 212 or MUSI 317; and MUSI 222; or permission of the instructor.

MUSI 322 CLASSICAL AND ROMANTIC ERAS (3)

Classical and Romantic Eras

Advanced historical studies in the music of the eighteenth and nineteenth centuries. Score reading ability required. Prerequisite(s): MUSI 321 or permission of the instructor.

MUSI 323 ROMANTIC SYMPHONY (3)

Romantic Symphony

Exploration of the genre of the symphony in the nineteenth century in the wake of Beethoven. Prerequisite(s): MUSI 421 or permission of instructor.

MUSI 324 OPERA ON FILM (3)

Opera on Film

Study of major treatments of cinematic and televised versions of opera, with a focus on aesthetics, interpretation, and representation. Enrollment limited to 15.

MUSI 327 MUSIC LIT-NONMAJORS I (3)

Music Lit-Nonmajors I

Historical survey of music from the Middle Ages to 1750. No prerequisites.

(F) = Fall; (S) = Spring

MUSI 328 MUSIC LIT–NONMAJORS II (3)**Music Lit–Nonmajors II**

Historical survey of music from 1750 to the present. No prerequisites.

MUSI 329 SPEC STUDIES IN MUSIC HISTORY (3)**Special Studies in Music History**

Special studies in music history. Topics may vary. Please consult with the department for additional information.

MUSI 331 AURAL SKILLS & PERF TECH III (2)**Aural Skills and Performance Techniques III**

Continuation of MUSI 232 plus chromaticism.

MUSI 332 AURAL SKILLS & PERF TECH IV (2)**Aural Skills and Performance Techniques IV**

Continuation of MUSI 331.

MUSI 334 CAMPANILE ORCHESTRA (1)**Campanile Orchestra**

Campanile Orchestra. Prerequisite(s): By audition only.

MUSI 335 UNDERGRADUATE CHORUS (1)**Undergraduate Chorus**

Section 1, Shepherd Singers (by audition only); Section 2, Rice Chorale; Section 3, Sallyport.

MUSI 337 UNDERGRADUATE ORCHESTRA (2)**Undergraduate Orchestra**

Undergraduate Orchestra.

MUSI 338 CHAMBER MUSIC (1)**Chamber Music**

Chamber Music–Undergraduate.

MUSI 340 CONCERT BAND (1)**Concert Band**

Section 1: Symphonic Band; Section 2: Wind Ensemble

MUSI 341 JUNIOR RECITAL (0)**Junior Recital**

Junior Recital. Prerequisite(s): Department approval required.

MUSI 342 JAZZ ENSEMBLE (1)**Jazz Ensemble**

Section 1, Jazz Ensemble I; Section 2, Jazz Ensemble II.

MUSI 344 ACTING FOR SINGERS (1)**Acting for Singers**

Acting for singers.

MUSI 345 APPLIED STUDIES IN JAZZ (2)**Applied Studies in Jazz**

Private lessons on specific advanced techniques in jazz improvisation. Must register with the Shepherd School and the Registrar's Office by the second week of classes. Prerequisite(s): Need written permission of instructor.

MUSI 351 CONCENTRATION FLUTE (2)**Concentration Flute**

Concentration Flute. Prerequisite(s): Need written permission of instructor.

MUSI 352 CONCENTRATION FLUTE–INTENSIVE (3)**Concentration Flute–Intensive**

Concentration Flute-Intensive. Prerequisite(s): Need written permission of instructor.

MUSI 353 CONCENTRATION OBOE (2)**Concentration Oboe**

Concentration Oboe. Prerequisite(s): Need written permission of instructor.

MUSI 354 CONCENTRATION OBOE INTENSIVE (3)**Concentration Oboe Intensive**

Concentration Oboe-Intensive.

(#) = credit hours per semester

MUSI 355 CONCENTRATION CLARINET (2)

Concentration Clarinet

Concentration Clarinet. Prerequisite(s): Need written permission of instructor.

MUSI 356 CONCEN CLARINET-INTENSIVE (3)

Concentration Clarinet-Intensive

Concentration Clarinet-Intensive. Prerequisite(s): Need written permission of instructor.

MUSI 357 CONCENTRATION BASSOON (2)

Concentration Bassoon

Concentration Bassoon. Prerequisite(s): Need written permission of instructor.

MUSI 358 CONCENTRAT'N BASSOON INTENSIVE (3)

Concentration Bassoon Intensive

Concentration Bassoon Intensive. Prerequisite(s): Need written permission of instructor.

MUSI 361 CONCENTRATION HORN (2)

Concentration Horn

Concentration Horn. Prerequisite(s): Need written permission of instructor.

MUSI 362 CONCENTRATION HORN INTENSIVE (3)

Concentration Horn Intensive

Concentration Horn-Intensive. Prerequisite(s): Need written permission of instructor.

MUSI 363 CONCENTRATION TRUMPET (2)

Concentration Trumpet

Concentration Trumpet.

MUSI 364 CONCENTRAT'N TRUMPET INTENSIVE (3)

Concentration Trumpet Intensive

Concentration Trumpet-Intensive. Prerequisite(s): Need written permission of instructor.

MUSI 365 CONCENTRATION TROMBONE (2)

Concentration Trombone

Concentration Trombone. Prerequisite(s): Need written permission of instructor.

MUSI 366 CONCENTRA'N TROMBONE INTENSIVE (3)

Concentration Trombone Intensive

Concentration Trombone-Intensive. Prerequisite(s): Need written permission of instructor.

MUSI 367 CONCENTRATION TUBA (2)

Concentration Tuba

Concentration Tuba. Prerequisite(s): Need written permission of instructor.

MUSI 368 CONCENTRATION TUBA INTENSIVE (3)

Concentration Tuba Intensive

Concentration Tuba-Intensive. Prerequisite(s): Need written permission of instructor.

MUSI 371 CONCENTRATION PERCUSSION (2)

Concentration Percussion

Concentration Percussion. Prerequisite(s): Need written permission of instructor.

MUSI 372 CONCENTRA PERCUSSION INTENSIVE (3)

Concentration Percussion Intensive

Concentration Percussion-Intensive. Prerequisite(s): Need written permission of instructor.

MUSI 373 CONCENTRATION VOICE (2)

Concentration Voice

Concentration Voice. Prerequisite(s): Need written permission of instructor.

MUSI 374 CONCENTRATION VOICE INTENSIVE (3)

Concentration Voice Intensive

Concentration Voice-Intensive. Prerequisite(s): Need written permission of instructor.

MUSI 381 CONCENTRATION PIANO (2)

Concentration Piano

Concentration Piano. Prerequisite(s): Need written permission of instructor.

(F) = Fall; (S) = Spring

MUSI 382 CONCENTRATION PIANO INTENSIVE (3)**Concentration Piano Intensive**

Concentration Piano-Intensive. Prerequisite(s): Need written permission of instructor.

MUSI 383 CONCENTRATION ORGAN (2)**Concentration Organ**

Concentration Organ. Prerequisite(s): Need written permission of instructor.

MUSI 384 CONCENTRATION ORGAN INTENSIVE (3)**Concentration Organ Intensive**

Concentration Organ-Intensive. Prerequisite(s): Need written permission of instructor.

MUSI 387 CONCENTRATION HARP (2)**Concentration Harp**

Concentration Harp. Prerequisite(s): Need written permission of instructor.

MUSI 388 CONCENTRATION HARP INTENSIVE (3)**Concentration Harp Intensive**

Concentration Harp-Intensive. Prerequisite(s): Need written permission of instructor.

MUSI 389 COLLABORATIVE PIANO SKILLS (3)**Collaborative Piano Skills**

A practicum exploring the pianist as an ensemble player. 3 sessions weekly. Performance class for pianists in partnership with instrumentalists and singers-particular techniques discovered in balance, pedaling, articulation, style, etc.; Supervised sight-reading private appointment with instructor on individual repertoire-songs, sonatas, concerto reductions, etc.

MUSI 391 CONCENTRATION VIOLIN (2)**Concentration Violin**

Concentration Violin. Prerequisite(s): Need written permission of instructor.

MUSI 392 CONCENTRATION VIOLIN INTENSIVE (3)**Concentration Violin Intensive**

Concentration Violin-Intensive. Prerequisite(s): Need written permission of instructor.

MUSI 393 CONCENTRATION VIOLA (2)**Concentration Viola**

Concentration Viola. Prerequisite(s): Need written permission of instructor.

MUSI 394 CONCENTRATION VIOLA INTENSIVE (3)**Concentration Viola Intensive**

Concentration Viola-Intensive. Prerequisite(s): Need written permission of instructor.

MUSI 395 CONCENTRATION VIOLONCELLO (2)**Concentration Violoncello**

Concentration Violoncello. Prerequisite(s): Need written permission of instructor.

MUSI 396 CONCENTR VIOLONCELLO INTENSIVE (3)**Concentration Violoncello Intensive**

Concentration Violoncello-Intensive. Prerequisite(s): Need written permission of instructor.

MUSI 397 CONCENTRATION DOUBLE BASS (2)**Concentration Double Bass**

Concentration Double Bass. Prerequisite(s): Need written permission of instructor.

MUSI 398 CONCENTR DOUBLE BASS INTENSIVE (3)**Concentration Double Bass Intensive**

Concentration Double Bass-Intensive. Prerequisite(s): Need written permission of instructor.

MUSI 401 COMPOSITION FOR MAJORS (3)**Composition for Majors****MUSI 403 BASIC ELECTRONIC MUSIC (3)****Basic Electronic Music**

A general introduction to fundamental concepts in electronic and computer music. Four hours of lab time per week required. Enrollment is limited to 12.

MUSI 404 ELECTRONIC MUSIC COMPOSITION (3)**Electronic Music Composition**

Continuation of MUSI 403. Prerequisite(s): MUSI 403 or permission of instructor. Enrollment limited to 12.

(#) = credit hours per semester

MUSI 405 MUSIC BUSINESS AND LAW (3)**Music Business and Law**

Permission of instructor. Prerequisite(s): Need written permission of instructor.

MUSI 406 CLASSICAL CONCERTO PERFORM CLAS (1)**Classical Concerto Performance Class**

Study of concerto repertoire for a chosen instrument with emphasis on stylistically informed performance. Enrollment limited to 15. Prerequisite(s): Need written permission of instructor.

MUSI 407 CHAMBER MUSIC CLASSIC PERIOD (3)**Chamber Music in the Classic Period**

Performance styles and rhetoric are examined and directed toward performance approaches to the music of Haydn, Mozart, and early Beethoven. Practical application of dances, textures, and popular topics of the time as well as an understanding of harmonic and formal implications. String quartet majors only - other music majors may audit.

MUSI 408 UNACCOMP BACH PERFORM CLASS (1)**Unaccomp Bach Perform Class**

Performance with commentary about stylistic and historic aspects of the works for one unaccompanied instrument of J. S. Bach. Students will perform versions in original form or transcribed for their instrument when applicable. Prerequisite(s): permission of instructor. Course not offered 2004–2005.

MUSI 409 SEM CLASSICL PERFORMANCE STYLE (1)**Seminar in Classical Performance Style**

Haydn, Mozart, early Beethoven, CPE Bach and other repertoire of the period. You must belong to a group that has already been coached and is prepared to perform at least one movement. Prerequisite(s): permission of the instructor.

MUSI 414 PIANO CHAMBER MUSIC LITERATURE (2)**Piano Chamber Music Literature**

Survey of the history and development of chamber music with piano.

MUSI 415 BAND ARRANGING (1)**Band Arranging**

Creative band arranging for marching, jazz, and concert bands. Study of contemporary harmony, musical style, and scoring supported by practical performance and analysis of student projects.

MUSI 416 ORCHESTRATION (3)**Orchestration**

Intensive study of the individual instruments of the orchestra and orchestrational techniques from the classical period through the present. Enrollment limited to 20.

MUSI 417 MUSIC FOR FILM (3)**Music for Film**

Permission of instructor. Enrollment limited to 35 students.

MUSI 421 THE MODERN ERA (3)**The Modern Era—Distribution Course Group I**

Twentieth century and contemporary. Advanced historical studies in music of the twentieth and twenty-first centuries. Score reading ability required. Prerequisite(s): MUSI 322 or permission of instructor.

MUSI 422 RENAISSANCE MUSIC (3)**Renaissance Music**

A study of the major musical styles and composers of Western art and music between 1400 and 1600 and their historical, cultural, and sociological contexts. Offered every other year.

MUSI 424 ORGAN LITERATURE I (3)**Organ Literature I****MUSI 425 ORGAN LITERATURE II (3)****Organ Literature II****MUSI 426 PIANO LITERATURE—SURVEY (3)****Piano Literature—Survey****MUSI 427 ORGAN LITERATURE III (3)****Organ Literature III**

(F) = Fall; (S) = Spring

MUSI 428 ORGAN LITERATURE IV (3)**Symphonic Literature****MUSI 429 MUSIC OF THE MIDDLE AGES (3)****Music of the Middle Ages**

A study of the major musical styles and composers of western art music before 1400 and their historical, cultural, and sociological contexts. Offered every other year. Also offered as MDST 429.

MUSI 431 AURAL SKILLS & PERFORM TECH V (2)**Aural Skills and Performance Techniques V**

Continuation of MUSI 332.

MUSI 435 CONTEMPORARY MUSIC ENSEMBLE (1)**Contemporary Music Ensemble**

Prerequisite(s): Permission of instructor is required. Note: Does not count as chamber music. Course not offered 2004–2005.

MUSI 436 COLLEGIUM (1)**Collegium**

Performance of music up to the early 17th century. Note: Does not count as chamber music. Prerequisite(s): Permission of instructor. Also offered as MDST 456.

MUSI 437 GRADUATE AURAL SKILLS REVIEW (2)**Graduate Aural Skills Review**

Offered irregularly.

MUSI 439 CHORAL CONDUCTING (3)**Choral Conducting**

The fundamental skills of choral conducting, including baton techniques, score reading, and rehearsal procedures. Conducting materials will be selected from representative choral works.

MUSI 440 CHORAL CONDUCTING II (3)**Choral Conducting II**

Advanced techniques of choral conducting with emphasis on expressive gestures and phrasal conducting, interpretation and chironomy of chant, recitative conducting, repertoire selection, score preparation, and conducting of choral-instrumental works.

MUSI 441 SENIOR RECITAL (0)**Senior Recital**

Prerequisite(s): Department approval required.

MUSI 442 RECITAL ACCOMPANYING (1)**Recital Accompanying**

Accompanying a single student recital, including the preview, dress rehearsal, performance, their lessons with the soloist's teacher, and practice times mutually agreeable to soloist and accompanist. Prerequisite(s): Need written permission of instructor.

MUSI 443 STUDIO ACCOMPANYING (1)**Studio Accompanying**

Accompanying private lessons in studios as assigned for a total of four hours per week. Prerequisite(s): Need written permission of instructor.

MUSI 444 PRACTICUM IN CONTEMPORARY MUSI (2)**Practicum in Contemporary Music**

For music majors. Each student will write a piece for an ensemble formed within the class. The piece will be rehearsed and coached as it is being written, and will be performed on various recitals. May be repeated for credit.

MUSI 445 KEYBOARD SKILLS I (2)**Keyboard Skills I****MUSI 446 KEYBOARD SKILLS II (2)****Keyboard Skills II****MUSI 447 INTRO TO PIANO TECHNOLOGY (2)****Introduction to Piano Technolog**

Introduction to the tuning and maintenance of pianos. Includes the theory and acoustics of tuning, a brief history of the piano, and a general exposure to restoration, as well as "hands-on" experience.

(#) = credit hours per semester

MUSI 448 PIANO TECH PRACTICUM PIANISTS (2)**Piano Technology Practicum for Pianists**

A practicum exploring the basic maintenance procedures of the modern pianoforte. Students will learn cleaning and unison tuning as well as basic action regulation.

MUSI 449 UNDERGRAD INDEPENDENT STUDY (HOURS VARIABLE)**Undergrad Independent Study**

Department approval required.

MUSI 450 QUALIFYING RECITAL (0)**Qualifying Recital**

Department approval required.

MUSI 451 FLUTE FOR MAJORS (3)**Flute for Majors****MUSI 453 OBOE FOR MAJORS (3)****Oboe for Majors****MUSI 455 CLARINET FOR MAJORS (3)****Clarinet for Majors****MUSI 457 BASSOON FOR MAJORS (3)****Bassoon for Majors****MUSI 459 WOODWIND PERF TECH (1)****Woodwind Performance Technique**

Primarily for conductors and composers. Course not offered every year.

MUSI 461 HORN FOR MAJORS (3)**Horn for Majors****MUSI 463 TRUMPET FOR MAJORS (3)****Trumpet for Majors****MUSI 465 TROMBONE FOR MAJORS (3)****Trombone for Majors****MUSI 467 TUBA FOR MAJORS (3)****Tuba for Majors****MUSI 469 THEORY OF BRASS PERF TECH (1)****Theory of Brass Performance Techniques**

Primarily for conductors and composers. Not offered every year.

MUSI 471 PERCUSSION FOR MAJORS (3)**Percussion for Majors****MUSI 472 GENERAL PERCUSSION STUDIES (1)****General Percussion Studies**

A class that will address other issues of percussion playing to prepare for a job that is not related to regular classical studies, i.e. drumset, jazz kits, rudimental drumming, instrument building, playing shows, sight-reading, etc. The emphasis of the class will vary each semester.

MUSI 473 VOICE FOR MAJORS (3)**Voice for Majors****MUSI 474 OPERA THEATER WORKSHOP (1)****Opera Theater Workshop**

Operatic techniques for the singer/actor: the cultivation, through study and performance, of free, expressive and significant movement on stage, and the development of musical, dramatic and muscular sensitivity as the basis of good opera theater. Participation, according to ability, in scenes recitals and major productions.

MUSI 475 VOCAL PERFORM TECHNIQUE (1)**Vocal Performance Technique**

Primarily for conductors and composers. Not offered every year.

MUSI 479 THEORY, PERCUS. PERFORM. TECH. (1)**Theory, Percussion Performance Technique**

Primarily for conductors and composers. Not offered every year.

(F) = Fall; (S) = Spring

MUSI 481 PIANO FOR MAJORS (3)**Piano for Majors****MUSI 483 ORGAN FOR MAJORS (3)****Organ for Majors****MUSI 487 HARP FOR MAJORS (3)****Harp for Majors****MUSI 491 VIOLIN FOR MAJORS (3)****Violin for Majors****MUSI 492 STRING TECHNOLOGY (2)****String Technology**

An introduction and practicum in the maintenance and repair of string instruments. Not offered every year.

Prerequisite(s): Permission of Director of Graduate Studies required. Not offered every year.

MUSI 493 VIOLA FOR MAJORS (3)**Viola for Majors****MUSI 495 VIOLONCELLO FOR MAJORS (3)****Violoncello for Majors****MUSI 497 DOUBLE BASS FOR MAJORS (3)****Double Bass for Majors****MUSI 499 STRING PERF. TECH. (1)****String Performance Technique**

Primarily for conductors and composers. Not offered every year.

MUSI 503 ACOUSTICS (3)**Acoustics**

An introduction to the physical acoustics of sound and its psychological perception. Intended for those interested in applying these principles towards the composition of music using computer software systems.

MUSI 504 COMP ASSIST MUSIC COMPOSTION (3)**Computer Assisted Music Composition**

Offered irregularly. Prerequisite(s): Permission of instructor.

MUSI 505 MULTIMEDIA INTERACTIV AUTHORNG (3)**Multimedia Interactive Authoring**

Offered irregularly. Prerequisite(s): Permission of instructor.

MUSI 511 GRADUATE THEORY REVIEW (2)**Graduate Theory Review****MUSI 512 ANALYTICAL SYSTEMS (3)****Analytical Systems**

Practical applications of principal analytical systems.

MUSI 513 MODAL COUNTERPOINT (3)**Modal Counterpoint**

Contrapuntal techniques of the 16th century, and analysis of selected works.

MUSI 514 SCORE READING (3)**Score Reading and Theory at the Keyboard**

Advanced studies in reading an orchestral score at the keyboard. Enrollment limited to 6.

MUSI 516 ADV ORCHESTRATION (3)**Advanced Orchestration**

Advanced studies in orchestration techniques from the classical era through the present day. Enrollment limited to 12. Prerequisite(s): MUSI 416 or equivalent.

MUSI 517 EARLY MODERN MASTERS (3)**Early Modern Masters**

Analysis of music from 1900–1945. Enrollment limited to 20.

(#) = credit hours per semester

MUSI 520 VERDI & WAGNER (3)**Verdi and Wagner**

In-depth explanation of two operas of each composer (recent choices are *Rigoletto*, *Falstaff*, *Tristan und Isolde*, & *Parsifal*), and comparison of the style & influence of the two figures. We also place these composers & works in cultural context, especially nationalism and the "music of the future" debate. Enrollment limited to 15
Instructor(s): *Citron*

MUSI 521 GRAD REVIEW OF MUSIC HIST I (3)**Graduate Review of Music History I**

Survey of Medieval, Renaissance, and Baroque music for graduate students.

MUSI 522 GRAD REVIEW OF MUSIC HIST II (3)**Graduate Review of Music History II**

Survey of Classical, Romantic and 20th century music for graduate students.

MUSI 523 BIBLIOG & RESEARCH METHODS (3)**Bibliography and Research Methods**

Study of bibliography methods and techniques in research methodology. Enrollment limited to 15.

MUSI 524 AMERICAN MUSIC (3)**American Music**

Exploration of art music in the United States, ca. 1800-ca. 1940, with reference to earlier American and European styles. Prerequisite(s): MUSI 421 or permission of instructor. Enrollment limited 15.

MUSI 525 PERFORMANCE PRACTICES SEMINAR (3)**Performance Practices Seminar**

The study of performing practices of music prior to the Romantic era. Topics will range from pre-performance considerations of pitch and tuning systems to those of performance, such as basso continuo realization, improvisation, vibrato, and articulation. Enrollment limited to 15.

MUSI 526 WOMEN IN MUSIC (3)**Women in Music**

Study of gender in music, including aesthetics and representation, and of the major roles women have assumed in music, especially as composers, performers and patrons. While the course emphasizes the western art tradition, other types of music are explored as well. Enrollment limited to 15. Also offered as WGST 440.

MUSI 527 TOPICS IN EARLY MUSIC (3)**Topics in Early Music**

Advanced study in selected topics in music history prior to 1600. Topics may vary. Please consult with the department for additional information.

MUSI 528 TOPICS IN 17TH & 18TH CENTURIES (3)**Topics in the 17th and 18th Centuries**

Topics in the 17th and 18th Centuries. Topics may vary. Please consult with the department for additional information. Enrollment limited to 15.

MUSI 529 TOPICS IN 19TH & 20TH CENTURIES (3)**Topics in the 19th and 20th Centuries**

Advanced study in selected topics in music history of the 19th and 20th centuries. Topics may vary. Please consult with the department for additional information. Enrollment limited to 15.

MUSI 531 ORCHESTRAL REPERTOIRE (1)**Orchestral Repertoire**

Section 1: violin; Section 2: viola; Section 3: cello; Section 4: double bass; Section 5: woodwinds; Section 6: brass; Section 7: percussion; Section 8: harp.

MUSI 533 GRADUATE CONDUCTING SEMINAR (1)**Graduate Conducting Seminar****MUSI 545 SERVICE SKILLS I (2)****Service Skills I****MUSI 546 SERVICE SKILLS II (2)****Service Skills II****MUSI 547 ORGAN PEDAGOGY (2)****Organ Pedagogy**

Offered irregularly.

(F) = Fall; (S) = Spring

MUSI 549 VOICE PEDAGOGY (2)**Voice Pedagogy**

Offered irregularly.

MUSI 559 WOODWIND PEDAGOGY (2)**Woodwind Pedagogy**

Offered irregularly.

MUSI 569 BRASS PEDAGOGY (2)**Brass Pedagogy**

Offered irregularly.

MUSI 571 VOCAL COACHING (1)**Vocal Coaching****MUSI 573 DICTION I—ITALIAN (1)****Diction I—Italian****MUSI 574 GERMAN DICTION (1)****German Diction****MUSI 575 VOICE REPERTOIRE I (2)****Voice Repertoire I****MUSI 576 VOICE REPERTOIRE II (2)****Voice Repertoire II****MUSI 577 ENGLISH DICTION (1)****English Diction****MUSI 578 FRENCH DICTION (1)****French Diction****MUSI 579 PERCUSSION PEDAGOGY (2)****Percussion Pedagogy**

Not offered every year.

MUSI 583 INSTRUMENT ACCOMPANY TECHNQ (2)**Instrumental Accompanying Technique**

A course for piano majors, emphasizing practical skills of accompanying string and wind instruments in a wide variety of repertoire. Offered irregularly.

MUSI 584 VOCAL COACH TECH FOR PIANISTS (2)**Vocal Coaching Techniques for Pianist**

A course for piano majors, to develop skills of accompanying and coaching singers. Topics will include basic vocal production and terminology, lieder, opera, and oratorio. Offered irregularly.

MUSI 588 PIANO PEDAGOGY I (2)**Piano Pedagogy I**

An overview of the group piano area which includes a comprehensive study of standard methods, in-depth discussion of group vs. individual lessons, and a supervised student teaching practicum.

MUSI 589 PIANO PEDAGOGY II (2)**Piano Pedagogy II**

An intensive study of studio teaching with an overview of different methods as well as guidance in studio organization and management. Each student will participate in a private teaching practicum as well.

MUSI 599 STRING PEDAGOGY (2)**String Pedagogy**

Section 1 Violin; Section 2 Viola; Section 3 Cello; Section 4 Double Bass. Not offered every year.

MUSI 601 COMPOSITN FOR MAJORS ADV&GRAD (3)**Composition for Majors Advanced and Graduates****MUSI 603 GRAD COMPOSITION SEMINAR (1)****Graduate Composition Seminar**

For music composition majors.

(#) = credit hours per semester

MUSI 605 ADV ELECT&COMP MUSIC SYSTEMS (3)**Advanced Electronic and Computer Music Systems**

Advanced topics in computer and electronic music for those who already have extensive experience in the medium. May be repeated for credit. Enrollment limited to 6. Prerequisite(s): permission of instructor.

MUSI 606 ADV COMPUTER SOUND SYNTHESIS (3)**Advanced Computer Sound Synthesis**

Continuation of MUSI 605. Use of sound-processing and sound synthesis software. May be repeated for credit. Prerequisite(s): MUSI 605 or permission of instructor. Enrollment limited to 8.

MUSI 610 ADVANCED OPERA WORKSHOP (2)**Advanced Opera Workshop**

For Doctoral students only. Provides singers with broad understanding of opera production. Lectures emphasize the exploration of music and text to develop the director's concept, development of underlying themes through staging, technical aspects of opera production, and methods for coaching singing actors. Students will direct and perform in opera scenes.

MUSI 611 PEDAGOGY OF THEORY (3)**Pedagogy of Theory**

The practical application of various teaching methods, and an in depth study of college-level materials. Enrollment limited to 10.

MUSI 613 TONAL COUNTERPOINT (3)**Tonal Counterpoint**

18th Century counterpoint in the style of J.S. Bach.

MUSI 614 SPECIAL TOPICS IN MUSIC THEORY (3)**Special Topics in Music Theory**

Topics may vary. Please consult with the department for additional information.

MUSI 615 INTRODUCTION TO JAZZ (3)**Introduction to Jazz**

Topics in jazz analysis and performance. Examination of important jazz recordings and a consideration of the music's historical development and social context. Open to both music and non-music majors and to both jazz and classical performers. Prerequisite(s): Ability to read music well and some previous study in music theory.

MUSI 617 MUSIC SINCE 1950 (3)**Music Since 1950**

Study and analysis of composers and music from Post- World War II to the present. Enrollment limited to 20.

MUSI 621 SELECT STUDY MUSIC: HISTORY (3)**Selected Studies in Music History**

Topics may vary. Please consult with the department for additional information. Enrollment limited to 15.

MUSI 622 EARLY OPERA (3)**Early Opera**

A study of opera history from the beginning of the seventeenth Century through Mozart's early works of the 1770's. We will consider literary sources, versification, musical forms, and the periodic "reforms" within the first two centuries of opera. Enrollment limited to 15.

MUSI 623 J.S. BACH: CAREER, WORKS & RECEPTION (3)**J.S. Bach: Career, Works, and Critical Reception**

An examination of Bach's music and the social circumstances in which he created it. A substantial portion of the course will focus on issues and controversies in recent Bach scholarship. Enrollment limited to 15.

MUSI 624 SEM ON SELECT COMPOSER (3)**Seminar on a Selected Composer**

Advanced study of the music of a single composer. Topics may vary. Please consult with the department for additional information. Enrollment limited to 15.

MUSI 625 MOZART OPERAS (3)**Mozart Opera**

Study of three or four of Mozart's operas in-depth, with a focus on how music shapes drama, interpretation, characterization, and meaning. Enrollment limited to 15.

MUSI 626 MUS MEAN & THE CLASSIC STYLE (3)**Musical Meaning and the Classical Style**

A study of the way in which Haydn, Mozart, and Beethoven create large musical forms that have purely musical meaning which does not derive from a text. We will consider various approaches to understanding musical meaning including rhetoric, structure, and style. Enrollment limited to 15.

(F) = Fall; (S) = Spring

MUSI 627 ROM SONGS & PIANO PIECES (3)**Romantic Songs and Piano Pieces**

Study of songs and piano character pieces of Shumann, Chopin, Mendelssohn, and Schubert from analytical and historical perspectives. Enrollment limited to 15.

MUSI 628 BRAHMS (3)**Brahms**

Study of Brahms in the context of 19th-century music and culture. Selected works are analyzed in detail and interpreted in light of formative influences (Schumann and older music) and contemporary debates (Wagnerism and Viennese musical politics). Enrollment limited to 15.

MUSI 629 OPERA 1875–1925 (3)**Opera 1875–1925**

In-depth study of Bizet's *carmen*, Verdi's *Otello*, Strauss's *Elektra*, and Berg's *Wozzeck*. The course emphasizes the role of music in shaping drama, characterization, and meaning. Enrollment limited to 15.

MUSI 630 GRAD CHORAL CONDUCTING SEMINAR (3)**Graduate Choral Conducting Seminar****MUSI 631 MOCK AUDITION (0)****Mock Audition**

Department approval required.

MUSI 633 COMPREHENSIVE PRAC PIANO TUNING (3)**Comprehensive Practicum in Piano Tuning**

The complete restoration of a studio or performance piano under the scrutiny of the instructor. Areas of emphasis include restringing, the installation of new action parts and dampers, and the finish regulation and voicing of these parts.

MUSI 635 ADVANCED ORCHESTRA (2)**Advanced Orchestra****MUSI 636 CHAMBER MUSIC (1)****Chamber Music****MUSI 637 ADVANCED CONDUCTING FOR MAJORS (3)****Advanced Conducting for Majors****MUSI 640 ADVANCED CHORUS (1)****Advanced Chorus**

Section 1, Shepherd Singers (by audition only); Section 2, Rice Chorale; Section 3, Sallyport.

MUSI 641 MASTER'S RECITAL I (0)**Master's Recital I**

Department approval required.

MUSI 642 ACCOMPANYING FOR ENSEMBLE (1)**Accompanying for Ensemble**

Taken in lieu of MUSI 635 or 640. Student to fulfill requirements of MUSI 442 or 443. Prerequisite(s): Permission of instructor required.

MUSI 645 ORGAN CONSTRUCTION (2)**Organ Construction****MUSI 647 MASTER'S THESIS (3)****Master's Thesis****MUSI 649 GRAD INDEPENDENT STUDY (HOURS VARIABLE)****Graduate Independent Study**

Approval of department required.

MUSI 651 FLUTE FOR MAJORS—ADV (3)**Flute for Majors—Advanced****MUSI 653 OBOE FOR MAJORS—ADV (3)****Oboe for Majors—Advanced****MUSI 655 CLARINET FOR MAJORS—ADV (3)****Clarinet for Majors—Advanced**

(#) = credit hours per semester

MUSI 656 BASSOON FOR MAJORS—ADV (3)

Bassoon for Majors—Advanced

MUSI 661 HORN FOR MAJORS—ADV (3)

Horn for Majors—Advanced

MUSI 663 TRUMPET FOR MAJORS—ADV (3)

Trumpet for Majors—Advanced

MUSI 665 TROMBONE FOR MAJORS—ADV (3)

Trombone for Majors—Advanced

MUSI 667 TUBA FOR MAJORS—ADV (3)

Tuba for Majors—Advanced

MUSI 671 PERCUSSION FOR MAJORS—ADV (3)

Percussion for Majors—Advanced

MUSI 673 VOICE FOR MAJORS—ADV (3)

Voice for Majors—Advanced

MUSI 681 PIANO FOR MAJORS—ADV (3)

Piano for Majors—Advanced

MUSI 683 ORGAN FOR MAJORS—ADV (3)

Organ For Majors—Adv

MUSI 686 APPLIED PIANO TECHNOLOGY (3)

Applied Piano Technology

The comprehensive study of tuning all important historical and modern temperaments; supervised work on action voicing, regulation, and restoration.

MUSI 687 HARP FOR MAJORS—ADV (3)

Harp For Majors—Adv

MUSI 689 PIANO CHAMBER MUSIC & ACCOMP MAJ (3)

Piano for Chamber Music and Accompanying Majors, Advanced/Graduate

MUSI 690 INSTRUMENT COACH STRING QUARTET (2)

Instrumental Coaching for String Quartet Majors

Advanced instrumental coaching for students in the M.Mus. string quartet program.

MUSI 691 VIOLIN FOR MAJORS—ADV (3)

Violin for Majors—Advanced

MUSI 693 VIOLA FOR MAJORS—ADV (3)

Viola for Majors—Advanced

MUSI 695 VIOLONCELLO FOR MAJORS—ADV (3)

Violoncello for Majors—Advanced

MUSI 697 DOUBLE BASS FOR MAJORS—ADV (3)

Double Bass for Majors—Advance

MUSI 698 ADVANCED STRING QUARTETS (4)

Advanced String Quartets

Private lessons for graduate students enrolled in the string quartet program.

MUSI 700 GRADUATE RESEARCH (HOURS VARIABLE)

Graduate Research

MUSI 707 DOCTORAL IND. STUDY, COMPOSITION (3)

Doctoral Independent Study, Composition

Independent project at the doctoral level.

MUSI 711 ANALYTICAL APPROACHES (3)

Analytical Approaches

In depth exploration of tonal and post-tonal analytical procedures. Required of all doctoral students.

(F) = Fall; (S) = Spring

MUSI 712 SEMINAR IN ADVANCED ANALYSIS (3)**Seminar In Advanced Analysis**

This class will build on the concept and materials presented in MUSI 711. Students will do in-depth analyses of significant pieces from several style periods. Prerequisite(s): MUSI 711 or permission of the instructor. Enrollment limited to 6.

MUSI 721 MUSIC OF SCHOENBERG (3)**Music of Schoenberg**

Study of the music of Arnold Schoenberg in the context of the major musical centers and artistic movements that colored his works: Vienna, Berlin, romanticism, expressionism and the New Objectivity. Enrollment limited to 15.

MUSI 722 MUSIC OF STRAVINSKY (3)**Music of Stravinsky**

Study of Igor Stravinsky's major works to ca. 1925 in the context of his early training, commissions from Diaghilev, exile in Switzerland and post-war prominence in Paris. Enrollment limited to 15.

MUSI 723 AESTHETICS IN MUSIC (3)**Aesthetics in Music**

An introduction to music aesthetics, focusing on contemporary theories and writings. Enrollment limited to 12. Course not offered 2004–2005.

MUSI 724 HILDEGARD OF BINGEN (3)**Hildegard of Bingen**

The course examines the life and works of 12th-century polymath Hildegard of Bingen, including her achievements in music, poetry, religious thought, medicine, natural science, and linguistics. Enrollment limited to 15.

MUSI 725 JOSQUIN (3)**Josquin**

Examination of the works of Josquin des Puz and his pivotal role in changing musical style in the late fifteenth and early sixteenth centuries.

MUSI 726 ILLUMINATED MUSIC MANUSCRIPTS (3)**Illuminated Music Manuscripts**

The study of illuminated music manuscripts from the Middle Ages through the mid-sixteenth century, with discussion of change in production, design, decoration, and function throughout this period. Non-music manuscripts will also be examined in order to place music collections in the context of contemporary manuscript culture. Also offered as MDST 486. Enrollment limited to 12.

MUSI 736 SOLO, CHAMBER, & CONCERTO REPERTOI (3)**Solo, Chamber, and Concerto Repertoire****MUSI 741 MASTER'S RECITAL II (0)****Master's Recital II**

Department approval required.

MUSI 742 STRING QUARTET RECITAL (0)**String Quartet Recital**

Each recital will include a format chosen by the quartet and natural to them in which they relate to the general public in a meaningful, non-technical way (i.e., pre-concert question and answer session, etc.). These are not lecture-recitals in the traditional, academic sense: their aim is to give the quartet guidance and experience in how to impart substantive information that help non-musicians deepen their concert-going experience.

MUSI 747 SURVEY—ORCHESTRAL REPERTOIRE (2)**Survey—Orchestral Repertoire**

A survey of the techniques of orchestral playing with emphasis on preparation of orchestral excerpts for professional auditions.

MUSI 748 DOCTORAL RECITAL RESEARCH (HOURS VARIABLE)**Doctoral Recital Research****MUSI 749 APPRENTICESHIP (HOURS VARIABLE)****Apprenticeship****MUSI 750 DOCTORAL DOCUMENT (3)****Doctoral Document**

Supervised research and writing in areas of performance study. Not limited to areas of original research.

(#) = credit hours per semester

MUSI 751 DOCTORAL RECITAL (0)**Doctoral Recital**

Section 1, solo; section 2, chamber; section 3, concerto; section 4, lecture. Department approval required.

MUSI 800 DISSERTATION (3)**Dissertation**

Substantial original music composition. Faculty approval required.

NAVA (NAVAL SCIENCE)**No College Designated/Naval Science****NAVA 101 NAVAL ORIENTATION (3)****Naval Orientation**

An introduction to naval traditions and customs, seamanship, naval organization and missions, and the fundamental concepts of seapower. Instructor(s): *Neal*

NAVA 102 NAVAL ENGINEERING (3)**Naval Engineering**

Ship propulsion systems, auxiliary systems, steering systems, electrical power distribution, ship design, ship stability and damage control measures. Instructor(s): *Mazat*

NAVA 201 NAV WEAPONS-NAVAL SHIP SYS II (3)**Naval Weapons-Naval Ship Systems II**

The theory and employment of weapons systems. The student explores the processes of detection, evaluation, threat analysis, weapon selection, delivery, guidance, and explosives. The physical aspects of radar and underwater sound are described in detail. Instructor(s): *Mazat*

NAVA 202 SEA POWER AND MARITIME AFFAIRS (2)**Sea Power and Maritime Affairs**

Readings, discussions, and research on selected topics related to the history, importance, and impact of seapower on modern civilization. Instructor(s): *Neal*

NAVA 301 NAVIGATION I (3)**Navigation**

Marine navigators and laws of vessel operations. Includes coastal piloting, navigational aids, nautical astronomy, satellite and inertial systems, and rules of the nautical road. Instructor(s): *Neal*

NAVA 302 NAVAL OPERATIONS II (3)**Naval Operations II**

An analysis of ship movements, formations, and fleet operations; includes Rules of the Road, maneuvering board, tactical publications and communications. Instructor(s): *Mazat*

NAVA 303 EVOLUTION OF WARFARE (2)**Evolution of Warfare**

Historical survey of the evolution of the conduct of warfare. Strategy, tactics, weapons, organization, and military leaders/thinkers are studied. Instructor(s): *McKeel*

NAVA 311 NAVIGATION LAB (0)**Navigation Lab****NAVA 401 LEADERSHIP MANAGEMENT I (3)****Leadership Management I**

An introduction to the principles and concepts of management, organization, leadership, information systems, and decision making. Instructor(s): *Staff*

NAVA 402 LEADERSHIP AND ETHICS (3)**Leadership and Ethics**

Leadership principles, with particular emphasis on ethics, human resources management, military law and discipline, and administration.

NAVA 410 AMPHIBIOUS WARFARE (2)**Amphibious Warfare**

Study of the history of amphibious warfare, using case studies to examine doctrine tactics, and the factors necessary for successful operations. Instructor(s): *McKeel*

(F) = Fall; (S) = Spring

NEUR (NEUROSCIENCE)

No College Designated/Other/No Department

NEUR 415 MATHEMATICAL NEUROSCIENCE (3)

Mathematical Neuroscience

Modeling of and computation by single neurons. Establish proficiency in the use of NEURON, a widely-used neurosimulation package, and so provide motivation and deliver a practical skill. From there, poke under NEURON's hood and derive the fundamental equations of neurodynamics and construct simple analytical and numerical procedures for their solution. Also offered as CAAM 415.

NEUR 501 COGNITIVE NEUROSCIENCE (HOURS VARIABLE)

Cognitive Neuroscience

Overview of neuropsychological and cognitive neuroscience approaches to higher mental functions including sensation and perception, attention, motor control, and neuroplasticity. Other topics include basic neuroanatomy, experimental and clinical investigative methods and the historical and philosophical context of contemporary neuroscience. Also offered as PSYC 575. Enrollment is limited to 15.

NEUR 502 COGNITIVE NEUROSCIENCE II (3)

Cognitive Neuroscience II

Overview of neuropsychological and cognitive service approaches to higher mental functions including language, memory, executive functions, reasoning, and numerical processing. Also offered as NEUR 502.

NEUR 505 OPTICAL IMAGING (3)

Optical Imaging

This course includes a theoretical portion which will introduce the fundamentals of optical imaging of neural activity, present the devices that are employed, and review applications and discuss their results. In addition, in a practical part, students will design, set up, and perform simple in vitro experiments to gain practical experience with this exciting and powerful technology. <http://www.ruf.rice.edu/~neurosci/> for late breaking news on NEUR courses.

NEUR 506 CONCEPT LEARNING & MEMORY (3)

Concepts of Learning and Memory

Rice University now offers a set of graduate level courses in Neuroscience many of which are taught, in part or in whole, by faculty from the nearby Baylor College of Medicine. Some of these courses are taught at Rice, some at Baylor, and some are split lectures at Rice and laboratories at Baylor. Rice students, including advanced undergraduates are encouraged to take these courses, many (but not all) of which are taught according to Rice's academic calendar. Because the specifics of these courses change frequently, prospective students are encouraged to visit the Neurosciences at Rice website www.ruf.rice.edu/~neurosci/. At that site you will find information about what students are eligible to enroll, about which courses will be offered each semester and their classroom locations, and about the procedure required for enrolling.

NEUR 507 NEUROBIOLOGY OF DISEASE (2)

Neurobiology of Disease

Rice University now offers a set of graduate level courses in Neuroscience many of which are taught, in part or in whole, by faculty from the nearby Baylor College of Medicine. Some of these courses are taught at Rice, some at Baylor, and some are split lectures at Rice and laboratories at Baylor. Rice students, including advanced undergraduates are encouraged to take these courses, many (but not all) of which are taught according to Rice's academic calendar. Because the specifics of these courses change frequently, prospective students are encouraged to visit the Neurosciences at Rice website www.ruf.rice.edu/~neurosci/. At that site you will find information about what students are eligible to enroll in, about which courses will be offered each semester and their classroom locations, and about the procedure required for enrolling.

NEUR 511 INTERGR NEUROSCIENCE CORE I (5)

Integrative Neuroscience Core I

A broad introductory survey covering all aspects of neuroscience, team-taught by faculty from Baylor College of Medicine. Includes a lab at Baylor. This is the entry level neuroscience course for all Rice students. Please contact Dr. James Pomerantz if you wish to enroll. Enrollment limited to 20.

NEUR 512 INTERGR NEUROSCIENCE CORE II (5)

Integrative Neuroscience Core II

A broad introductory survey covering all aspects of neuroscience, team-taught by faculty from Baylor College of Medicine. A continuation of NEUR 511, which is a prerequisite for NEUR 512. Course taught at Baylor. Enrollment limited to 20.

(#) = credit hours per semester

NEUR 515 NEURAL DEVELOPMENT (3)**Neural Development**

An advanced graduate course focusing on molecular genetic studies. Integrates molecular patterning of nervous system with developmental neuroscience using a cross-species approach, with an emphasis on the visual system. Topics include the biochemical and genetic basis for neural plasticity, neurotrophic factors in neural development and the molecular mechanism of growth cone guidance and synapse formation.

NEUR 516 SENSORY SYSTEMS (3)**Sensory Systems**

A two-part course covering sensory transduction in audition, touch, and the chemical senses, and a detailed coverage of the visual system, including retinal structures and central pathways, phototransduction, receptive fields and functional organization in the cortex. Enrollment limited to 10.

NSCI (NATURAL SCIENCES)**School of Natural Sciences/Natural Sciences Division****NSCI 111 SCI TODAY I: CONCEPT PHYS & ASTRO (3)****Science Today I: Concepts in Physics and Astronomy**

This course is intended as an investigation of some of the major concepts in physics and astronomy that form the basis of our modern understanding of the universe. By focusing on scientific methodology and a few universal laws, the course will help students appreciate scientific discoveries and give them the conceptual understanding to form intelligent views of contemporary scientific issues. For non-science/engineering majors.

NSCI 112 SCIENCE IN THE MODERN WORLD II (3)**Science in the Modern World II**

A course designed to relate scientific principles and problems to modern times. The emphasis will be on the science of life and health.

NSCI 142 SCIENCE FOR CHANGING TIMES II (3)**Science For Changing Times II**

This course is designed for nonscience and nonengineering majors. In it, we will explore topics having a direct impact on our lives right now and in the future. These will include nuclear medicine, global warming, water pollution, the chemical industry, cloning and genetic engineering, health and fitness, and drugs. Learn to be an active and informed citizen.

NSCI 230 COMPUTATION SCI & ENGINEERING (3)**Computation Science and Engineering**

The course introduces basic techniques for problem solving and visualization using computational environments such as Mathematica and Matlab. Class will consist of a mixture of traditional lectures held in classrooms and self-paced modules covering topics in science and engineering that will be completed in Symonds II. No previous experience is required or expected. Also offered as COMP 110.

NSCI 305 NEW VENTURE COMMUN FOR SCI & ENG (1)**New Venture Communication for Science and Engineering**

Teaches students in science or engineering the skills needed to discover, communicate, and promote products and services based on technological innovation or scientific research. Students learn to innovate a product or service with social or commercial application, write an early-stage business plan, and give a 10-minute financing presentation. Also offered as ENGI 305.

NSCI 307 PREP FOR PROF COMM FIVE COUNTR (1)**Preparing for Professional Communication in Five Countries, Many Cultures**

Prepares students to anticipate the roles, situations, and expected communication practices they would encounter in engineering firms or other businesses in the United Kingdom, Germany, China, Mexico, and the Middle East. Enrollment limited to 20. Also offered as ENGI 307.

NSCI 309 LEADERSHIP COMMUNICATION (1)**Leadership Communication**

Leadership communication is one-credit course taught in two parts. Each part lasts 7 weeks and involves 7 hours of classroom instruction and 5 hours of laboratory or small group studio work. Part 1 focuses on leadership writing; part 2 on leadership speaking. Each must be taken in a separate semester. Both parts must be completed to earn the credit hour. The course teaches writers and speakers how to explain ideas in the context of values for audiences with a variety of vested interests. The course covers organizational and persuasive strategies as well as stylistic and delivery techniques. Students will draw on projects in their course work or extracurricular activities in selecting topics for major assignments in writings and presentations. Students will also develop a statement of career and life goals and practice explaining these as qualifications for a leadership role during the course. A final presentation and written report involving a campus leadership project or activity will be required to complete the course and obtain a notation about leadership communication qualifications on the transcript.

NSCI 477 SPECIAL PROJECTS (3)**Special Projects****NSCI 501 PROFESSIONAL MASTER'S SEMINAR (1)****Professional Master's Seminar**

A weekly seminar which serves to provide exposure to local industry leaders from the areas of oil & gas exploration, nanotechnology, and environmental management; introduce career management and business relations tools; further develop written and oral communication skills; provide a forum for students to present internship project results.

NSCI 505 ENVIRONMENTAL LAB (1)**Environmental Lab**

Laboratory module offered in conjunction with CAAM 353 that illustrates applications of numerical analysis in the solutions of common environmental science and engineering problems. Consent of professor is required.

NSCI 506 ENVIRONMENTAL CASE STUDIES (1)**Environmental Case Studies**

Seminar bringing in outside speakers from the community to address environmental issues.

NSCI 510 PROFESSIONAL MS INTERNSHIP (12)**Professional MS Internship**

Supervised internship or project associated with pursued degree. Exclusively for students in the Professional Master's Program.

NSCI 511 SCIENCE, POLICY, AND ETHICS (3)**Science, Policy, and Ethics**

An introduction to the policy, politics, ethics and legal issues that relate to science and technology- discovery and application. This course identifies ways in which government laws, regulations, programs and actions, as well as business policy and practices can promote or inhibit advances in science and technology and applications for the public good. Case studies will be used, and experts from various fields will be invited to meet with the class.

NSCI 577 SPECIAL PROJECTS (3)**Special Projects****NSCI 580 CONTEMP TOPICS IN ELEM MATH (3)****Contemporary Topics in Elementary School Mathematics**

Mathematical topics related to elementary grades, including geometry, probability and statistics, patterns, relations, functions, and number theory. Hands-on experiences in innovative teaching methods using manipulatives, technology, problem-solving techniques, and motivational strategies. Curriculum development and assessment strategies. These courses do not count toward graduate degrees in Natural Sciences.

NSCI 585 CONTEMP TOPICS IN MDL SCH MATH (3)**Contemporary Topics in Middle School Mathematics**

Mathematical topics related to middle school mathematics, including geometry, probability and statistics, patterns, relations, functions, and number theory. A problem-solving approach to teaching mathematics with an emphasis on the use of manipulatives and technology. Curriculum development and assessment strategies. These courses do not count toward graduate degrees in Natural Sciences.

NSCI 586 CONT TOPICS IN K-12 SCI & MATH (HOURS VARIABLE)**Contemporary Topics in K-12 Science and Mathematics**

Topics related to science and/or mathematics instruction- both content and pedagogy- in grades K-8. Multiple sections are offered. Each section focuses on specific areas of instruction at specified grade levels. Current offerings include a section that focuses on middle school concepts of force and motion, one that addresses interdisciplinary science at the K-8 level with an emphasis on the Galveston Bay area, and another that addresses integration of science and mathematics related to concepts of measurement and problem-solving at the elementary and a different section for the middle school level. All sections include field studies, inquiry, curriculum development and implementation of instructional strategies in the classroom. More complete descriptions of individual sections may be viewed at www.bioc.rice.edu/precollege. Students may enroll in different sections for repeated credit. These courses do not count toward graduate degrees in Natural Sciences.

NSCI 590 CONTEMP TOPICS HIGH SCHL MATH (3)**Contemporary Topics in Senior High School Mathematics**

Mathematical topics related to senior high school mathematics, including geometry, probability and statistics, functions, number theory, and sequences and series. A problem-solving approach to teaching mathematics with an emphasis on the use of technology, curriculum development and assessment strategies. These courses do not count toward graduate degrees in Natural Sciences.

(#) = credit hours per semester

NSCI 595 TOPICS IN CONTEMP ALGEBRA (HOURS VARIABLE)**Topics in Contemporary Algebra for In-Service Teachers**

Teaching beginning algebra with an emphasis on mathematical models and representations, variables and functions, and symbolic reasoning. Foundation concepts for secondary mathematics, algebraic thinking and symbolic reasoning, function concepts, relationship between equations and functions, tools for algebraic thinking, relationship between algebra and geometry, and underlying mathematical processes. Use of manipulatives and technology. Curriculum development and assessment strategies. These courses do not count toward graduate degrees in Natural Sciences.

PHIL (PHILOSOPHY)**School of Humanities/Philosophy****PHIL 100 PROBLEMS OF PHILOSOPHY (3)****Problems of Philosophy**

An introduction to philosophy through such fundamental problems as the basis of morality, the foundation of state authority, determinism and freedom, and the possibility of knowledge. Instructor(s): *Sheinman*

PHIL 101 CONTEMPORARY MORAL ISSUES (3)**Contemporary Moral Issues**

Examination of moral issues surrounding such topics as abortion, euthanasia, war, capital punishment, justice, and equality. Instructor(s): *Norcross, Sher*

PHIL 103 PHIL ASPECT COGNITIVE SCIENCE (3)**Philosophical Aspects of Cognitive Science**

An examination of current research in cognitive science and its philosophical implications. Topics include whether the mind is a computational system, how the mind is organized, whether certain components of the mind are innate. Instructor(s): *Margolis*

PHIL 104 PHIL PERSPECTIVES ON SCIENCE (3)**Philosophical Perspectives on Science**

The nature, origins, and impact of scientific knowledge will be examined from a variety of disciplinary perspectives. In addition to works by some of history's greatest philosophers, including Descartes and Hume, readings will include selections from 20th-century philosophers, scientists, historians, and feminists. Normally offered every year. Instructor(s): *Roush*

PHIL 105 HIST INTRO TO PHILOSOPHY (3)**Historical Introduction to Philosophy**

Study and discussion of central ideas of Western philosophy as developed by its original thinkers. Instructor(s): *Staff*

PHIL 106 LOGIC (3)**Logic**

Introduction to the formal theory of reasoning, which will be used to assess the validity of arguments in natural languages. Instructor(s): *Staff*

PHIL 108 THE PHILOSOPHICAL LIFE (3)**Philosophical Life: A Literary/Historical Introduction**

An introduction to philosophy through historical and contemporary philosophical and literary sources-including Sophocles, Plato, Shakespeare, Descartes, Dostoevsky, Nietzsche, Mann, Sartre, and others. Course not offered 2004-2005. Instructor(s): *Crowell*

PHIL 120 ETHICS OF LEADERSHIP (1)**Ethics of Leadership**

This class explores the ethical implications of leadership. The course includes: a presentation of some main approaches to ethics; class discussion of the ethical dimensions of the very concept "leader"; and a series of case studies. The course has no pre-requisites. Enrollment limited to 20. Course not offered 2004-2005. Instructor(s): *Staff*

PHIL 201 HISTORY OF PHILOSOPHY I (3)**History of Philosophy I**

Survey of the major philosophers and philosophical systems of ancient Greece, from Parmenides to the Stoics. Also offered as MDST 201 and CLAS 201. Instructor(s): *Morrison*

PHIL 202 HIST OF PHILOSOPHY II (3)**History of Philosophy II**

A survey of the history of philosophy from the 17th- to the 20th century. Instructor(s): *Kulstad*

(F) = Fall; (S) = Spring

PHIL 301 ANCIENT & MEDIEVAL PHILOSOPHY (3)**Ancient and Medieval Philosophy**

Topics in the history of philosophy from the 4th century B.C. through the 14th century. Instructor(s): *Morrison*

PHIL 302 MODERN PHILOSOPHY (3)**Modern Philosophy**

Examination of themes or authors in 17th- and 18th- century philosophy. Topics vary from year to year. Normally offered every year. Instructor(s): *Kulstad*

PHIL 303 THEORY OF KNOWLEDGE (3)**Theory of Knowledge**

Topics: analysis of knowledge, foundations of knowledge, skepticism, perception, etc. Instructor(s): *Roush*

PHIL 304 METAPHYSICS (3)**Metaphysics**

Examination of metaphysical theories in the works of historical and contemporary thinkers. Topics may include: free will, the identity of persons over time, causation, possibility and necessity, design and chance, the nature of existence, the nature of time. Instructor(s): *Grandy*

PHIL 305 MATHEMATICAL LOGIC (3)**Mathematical Logic**

We study formal languages and methods for assessing correctness of arguments, including a brief look at modal and many-valued logics. We also consider their relations to natural languages and reflect on the techniques required to prove theorems about languages. A previous logic course is helpful, though the course is self-contained. Instructor(s): *Grandy*

PHIL 306 ETHICS (3)**Ethics**

This course deals with fundamental questions of value and morality-questions such as: What sort of life is best? What kind of person is it best to be? What does morality require of us? It also deals with important second-order questions about these fundamental questions- for example: Can morality be justified? How can we know what's right or good? Is there moral truth? What is the relation between morality and self-interest? Readings are drawn from both classical and contemporary sources. Instructor(s): *Sheinman*

PHIL 307 SOCIAL & POLITICAL PHIL (3)**Social and Political Philosophy**

What makes a society just? On what grounds may the liberty of individuals be legitimately limited? What social ends may a state legitimately pursue? Instructor(s): *Sheinman*

PHIL 308 CONTINENTAL PHILOSOPHY (3)**Continental Philosophy**

An examination of philosophical movements in 20th-century European philosophy-including phenomenology, existentialism, hermeneutics, critical theory, deconstruction, and postmodernism. Course not offered 2004-2005. Instructor(s): *Crowell*

PHIL 309 AESTHETICS (3)**Aesthetics**

An introduction to the philosophy of art drawing upon traditional and contemporary philosophical theories, and on examples from visual, literary, and performing arts (including architecture.) Topics include: What is a work of art? What is it to interpret artworks? What makes a work good? Can art speak the truth? Course not offered 2004-2005. Instructor(s): *Zuckert, Crowell*

PHIL 311 PHILOSOPHY OF RELIGION (3)**Philosophy of Religion**

Examination of God's existence, the problem of evil, the relation between faith and reason, and the varieties of religious experience. Normally offered every other year. Course not offered 2004-2005. Instructor(s): *Brody*

PHIL 312 PHILOSOPHY OF MIND (3)**Philosophy of Mind**

Inquiry into the nature of mind, with emphasis on the mind/body problem. Prerequisite: One course in philosophy or permission of the instructor. Instructor(s): *Margolis*

PHIL 313 PHILOSOPHY OF SCIENCE (3)**Philosophy of Science**

A study of selected contemporary issues in the philosophy of science. How do scientific theories provide us with an understanding of the world? How do our observations, in turn, provide support for scientific theories? Science needed will be taught, not presupposed. Normally offered every year. Prerequisite: one course in philosophy. Instructor(s): *Grandy, Roush*

PHIL 314 THE PHILOSOPHY OF MEDICINE (3)**The Philosophy of Medicine**

The biomedical sciences, the practice of medicine, and health care policy employ concepts of health, disease, disability, and defect in explanatory accounts, intermixing factual claims with moral and other evaluations. This course explores the interplay of evaluation and explanation in medicine's models of disease and health. Course not offered 2004-2005. Instructor(s): *Engelhardt*

PHIL 315 ETHICS, MEDICINE & PUB POLICY (3)**Ethics, Medicine, and Public Policy**

The relationship between theories of justice and accounts of the proper allocation of health care is explored. The first half examines Rawls' "Theory of Justice", Nozick's "Anarchy, State, and Utopia", and particular accounts of justice and health care. The second addresses specific problems in the allocation of health care resources. Instructor(s): *Engelhardt*

PHIL 316 PHILOSOPHY OF LAW (3)**Philosophy of Law**

Examination of social control of private property, compensation in the law of torts, the right to privacy and bodily integrity, and justice through compensatory discrimination, etc. Instructor(s): *Brody*

PHIL 317 ETHICS AND EXISTENCE (3)**Ethics and Existence**

An examination of the concept of ethical obligation from an existential point of view. Readings from Kierkegaard, Husserl, Heidegger, Sartre, Derrida, Levinas, and Apel. Course not offered 2004-2005. Instructor(s): *Crowell*

PHIL 319 FEMINIST PHILOSOPHY (3)**Feminist Philosophy**

This course is an introduction to feminist philosophy, including texts by both historical and contemporary thinkers (e.g. Wollstonecraft, Mill, de Beauvoir, MacKinnon, Gilligan, Irigaray). We shall discuss both feminists' radical critiques of traditional values and beliefs, and feminist alternative views of justice, ethical judgment, and truth. Course not offered 2004-2005. Also offered as WGST 339. Instructor(s): *Zuckert*

PHIL 321 KANT & 19TH CENTURY PHILOSOPHY (3)**Kant and 19th Century Philosophy**

An examination of Kant and post-Kantian philosophy in the 19th century, which may include Schiller, Hegel and German Idealism, Schopenhauer, Marx, Kierkegaard, Nietzsche, and Dilthey. Instructor(s): *Zuckert*

PHIL 326 HISTORY OF ETHICS (3)**History of Ethics**

An introduction to the major issues of ethical theory through the reading and discussion of such classical figures as Plato, Aristotle, the Stoics, the Epicureans, St. Augustine, St. Thomas, Maimonides, Bishop Butler, David Hume, Adam Smith, J.S. Mill, and I. Kant. Course not offered 2004-2005. Instructor(s): *Staff*

PHIL 327 HIST SOCIAL & POLITICAL PHILOS (3)**History of Social and Political Philosophy**

A survey of classic texts in the history of social and political philosophy, from Plato to Machiavelli to Mill. Instructor(s): *Morrison*

PHIL 331 MORAL PSYCHOLOGY (3)**Moral Psychology**

An examination of the role of intellect, emotion, and character as they contribute to the moral (and immoral) life, and as they pertain to rationality and moral responsibility. Course not offered 2004-2005. Instructor(s): *Staff*

PHIL 332 ANIMAL RIGHTS (3)**Animal Rights**

Is it wrong to breed animals for food and experimentation? Do we have a moral obligation to eliminate meat from our diets and leather from our wardrobes? Do non-human animals have rights? This course will explore these questions. Instructor(s): *Norcross*

PHIL 335 ADV TOPICS IN VALUE THEORY (3)**Advanced Topics in Value Theory**

Intensive examination of a topic of contemporary or historical interest in ethics or social and political philosophy. Prerequisite(s): one course in philosophy or permission of instructor. Course not offered 2004-2005. Instructor(s): *Staff*

PHIL 353 PHILOSOPHY OF LANGUAGE (3)**Philosophy of Language**

Philosophical investigation of relations among language, thought, and reality. Prerequisite(s): one course in Philosophy or permission of instructor. Instructor(s): *Staff*

(F) = Fall; (S) = Spring

PHIL 355 PHIL TOPICS IN ADVANCED LOGIC (3)**Philosophical Topics in Advanced Logic**

Various systems of formalization for modalities, tenses and other intensional concepts are studied syntactically and semantically. Students use and compare these systems and evaluate their strengths and limits. These provide examples for discussion of questions such as: What is a logical constant? What is the scope of logic? Course not offered 2004-2005. Instructor(s): *Grandy*

PHIL 357 INCOMPL, UNDECIDED, & COMPUTBLTY (3)**Incompleteness, Undecidability, and Computability**

Proof of Godel's Incompleteness Theorems for number theory in several forms and by various methods, as well as development of several definitions of computability for number-theoretic functions, which are then shown to be equivalent. Includes proof of the unsolvability of the Halting Problem and analysis of Church's thesis, as well as exploration of the extension of the concept of computability to real-valued functions. Course not offered 2004-2005. Instructor(s): *Grandy*

PHIL 390 NIETZSCHE'S ANTHROPOLOGY (3)**Nietzsche's Anthropology**

Situates Nietzsche's thought on language, history, and body within its historical context, and examines the validity of his arguments in a world increasingly challenged by scientific knowledge. Focuses on Nietzsche's views on truth, genealogy, nihilism, morality, and science, which continue to be relevant for current debates within the humanities. Taught in English. Enrollment limited to 20. Also offered as GERM 333. Instructor(s): *Emden, Caldwell*

PHIL 401 INDEPENDENT READING I (3)**Independent Reading I**

Instructor(s): *Staff*

PHIL 402 INDEP. READING II (3)**Independent Reading II**

See PHIL 401. Instructor(s): *Staff*

PHIL 501 SEM IN ANCIENT/MEDIEVAL PHIL (3)**Seminar in Ancient and Medieval Philosophy**

Instructor(s): *Morrison*

PHIL 502 SEMINAR IN MODERN PHILOSOPHY (3)**Seminar in Modern Philosophy**

Instructor(s): *Kulstad*

PHIL 503 SEMINAR IN EPISTEMOLOGY (3)**Seminar in Epistemology**

Course not offered 2004-2005. Instructor(s): *Staff*

PHIL 504 SEMINAR IN METAPHYSICS (3)**Seminar in Metaphysics**

Course not offered 2004-2005. Instructor(s): *Staff*

PHIL 505 MATHEMATICAL LOGIC (3)**Mathematical Logic**

See PHIL 305. Instructor(s): *Grandy*

PHIL 506 SEMINAR IN ETHICS (3)**Seminar in Ethics**

Instructor(s): *Norcross*

PHIL 507 SEM SOCIAL & POLITICAL PHILO (3)**Seminar in Social and Political Philosophy**

Course not offered 2004-2005. Instructor(s): *Staff*

PHIL 508 SEM CONTINENTAL PHILOSOPHY (3)**Seminar in Continental Philosophy**

The study of selected topics and figures in 20th century European philosophy. Instructor(s): *Crowell*

PHIL 509 SEMINAR IN AESTHETICS (3)**Seminar in Aesthetics**

Course not offered 2004-2005. Instructor(s): *Staff*

PHIL 512 SEMINAR PHILOSOPHY OF MIND (3)**Seminar Philosophy of Mind**

Instructor(s): *Margolis*

(*) = credit hours per semester

PHIL 513 SEM PHILOSOPHY OF SCIENCE (3)**Seminar in Philosophy of Science**Instructor(s): *Roush***PHIL 522 TOPICS IN MODERN PHILOSOPHY (3)****Topics in Modern Philosophy**Topics in early modern philosophy: a focused, more advanced seminar on select problems or figures in the 17th and 18th centuries. Instructor(s): *Kulstad***PHIL 523 SEMINAR IN KANT (3)****Seminar in Kant**Course not offered 2004-2005. Instructor(s): *Staff***PHIL 524 SEMINAR IN HEGEL (3)****Seminar in Hegel**Instructor(s): *Engelhardt***PHIL 525 SEMINAR IN 19TH C. PHILOSOPHY (3)****Seminar in 19th Century Philosophy**An in-depth investigation of a central philosophical movement (eg. romanticism, german idealism) and/or of the works of one or more central philosophers in the 19th century, to include, e.g., Nietzsche, Schopenhauer Marx, Kierkegaard, Schelling, and Fichte. Instructor(s): *Zuckert***PHIL 530 SEM HIST ANALYTIC PHILOSOPHY (3)****Seminar in History of Analytic Philosophy**Course not offered 2004-2005. Instructor(s): *Staff***PHIL 532 SEMINAR IN METAETHICS (3)****Seminar in Metaethics**Course not offered 2004-2005. Instructor(s): *Staff***PHIL 533 SEMINAR IN VIRTUE ETHICS (3)****Seminar in Virtue Ethics**

The leading question of virtue ethics has been characterized as: "What kind of person is it best to be?" Topics to be discussed may include moral worth, virtues and vices, and feminist ethics. Course not offered 2004-2005.

Instructor(s): *Staff***PHIL 534 LIBERALISM (3)****Liberalism**

An examination of the philosophical foundations of liberalism, with emphasis on the thesis that government should be neutral toward competing conceptions of the good life. Alternate year. Course not offered 2004-2005.

Instructor(s): *Sher***PHIL 536 SEMINAR IN MEDICAL ETHICS (3)****Seminar in Medical Ethics**An examination of the theoretical foundations of bioethics emphasizing principlism, utilitarianism, Kantianism, contractarianism, medicalism, post-modernism, and casuistry. Instructor(s): *Brody***PHIL 537 SEMINAR IN RESEARCH ETHICS (3)****Seminar in Research Ethics**An examination of the major issues of research ethics, including informed consent and IRB review, involvement and protection of special groups of subjects, fetal tissue and stem cell research, and genetic research. Course not offered 2004-2005. Instructor(s): *Brody***PHIL 542 TOPICS IN PHILOSOPHY OF MIND (3)****Topics in Philosophy of Mind**

An in-depth look at different topics in contemporary philosophy of mind. Some sample topics: consciousness, mental representation, innateness, modularity, and the role of language in thought. Course not offered 2004-2005.

Instructor(s): *Margolis***PHIL 543 PHILOSOPHY OF MIND (3)****Topics in Philosophy of Science**Focused consideration of either topics of perennial interest (e.g. explanation, experiment, the problem of induction, the measurement problem of quantum mechanics, interpretation of probability, realism vs. anti-realism, the role of values in science) or topics currently popular in the field, e.g., the Doomsday Argument, the Anthropic Principle. Course not offered 2004-2005. Instructor(s): *Margolis*

(F) = Fall; (S) = Spring

PHIL 553 SEM PHILOSOPHY LANGUAGE (3)**Seminar in Philosophy of Language**

Course not offered 2004-2005 Instructor(s): *Staff*

PHIL 590 TOPICS IN PHILOSOPHY (3)**Topics in Philosophy**

Topics may vary: Please consult with the department for additional information. Instructor(s): *Sher*

PHIL 598 ADVANCED INDEPENDENT READING (3)**Advanced Independent Reading**

Directed reading and research. Prerequisite(s): Philosophy graduate students only. Instructor(s): *Crowell*

PHIL 599 ADVANCED INDEPENDENT READING (3)**Advanced Independent Reading**

Directed reading and research. Prerequisite: Philosophy graduate students only. Instructor(s): *Crowell*

PHIL 601 RESEARCH PAPER (3)**Research Paper**

Research course normally for second-year graduate students completing research paper requirement.

Instructor(s): *Crowell*

PHIL 602 RESEARCH PAPER (3)**Research Paper**

Research course normally for second year graduate students completing research paper requirement. Prerequisite: Philosophy graduate students only. Instructor(s): *Crowell*

PHIL 651 MASTERS THESIS RESEARCH (HOURS VARIABLE)**Masters Thesis Research**

Research course for graduate students preparing a masters thesis. Instructor(s): *Crowell*

PHIL 652 MASTERS THESIS RESEARCH (HOURS VARIABLE)**Masters Thesis Research**

Research course for graduate students preparing a Masters thesis. Course may be repeated for credit. Prerequisite(s): Philosophy graduate students only. Instructor(s): *Crowell*

PHIL 701 RESEARCH COMPREHENSIVE & THESIS (HOURS VARIABLE)**Reading and Research for Comprehensive Examination and Thesis Proposal**

Reading courses in preparation for the comprehensive examination and thesis proposal defense. Instructor(s): *Crowell*

PHIL 702 RESEARCH COMPREHENSIVE & THESIS (HOURS VARIABLE)**Reading and Research for Comprehensive Examination and Thesis Proposal**

Reading courses in preparation for the comprehensive examination and thesis proposal defense. Course may be repeated for credit. Prerequisite(s): Philosophy graduate students only. Instructor(s): *Crowell*

PHIL 757 TEACHING WORKSHOP (2)**Teaching Workshop**

A highly participatory workshop for graduate students to improve their teaching abilities. Instructor(s): *Grandy*

PHIL 800 RESEARCH AND THESIS (HOURS VARIABLE)**Research and Thesis**

Instructor(s): *Crowell*

PHYS (PHYSICS)**School of Natural Sciences/Physics and Astronomy****PHYS 101 MECHANICS (WITH LAB) (3)****Mechanics (With Lab)**

Calculus-based survey of physics. Includes classes and lab exercises on topics chosen from mechanics, electricity, and magnetism. Primarily for physical science and engineering students. May receive credit for only one of PHYS 101, 111, 125, AP Physics-B, and AP Physics-C (MECH). Instructor(s): *Dunning*

PHYS 102 ELECTRICITY & MAGNETISM W/LAB (4)**Electricity and Magnetism (With Lab)**

Continuation of PHYS 101. May receive credit for only one of PHYS 102, 112, 126, AP Physics-B, and AP Physics-C (E&M). Prerequisite(s): PHYS 101 or equivalent. Instructor(s): *Corcoran*

(#) = credit hours per semester

PHYS 111 MECHANICS (WITH LAB) (3)**Mechanics (With Lab)**

Calculus-based survey of physics. Includes classes and lab exercises on topics chosen from mechanics, electricity, and magnetism. Primarily for physical science and engineering students with strong high school backgrounds in physics. May receive credit for only one of PHYS 101, 111, 125, AP Physics-B, and AP Physics-C (MECH). Prerequisite(s): high school physics and calculus. Instructor(s): *Hannon*

PHYS 112 ELECTRICITY & MAGNETISM W/LAB (4)**Electricity and Magnetism (With Lab)**

Continuation of PHYS 111. May receive credit for only one of PHYS 102, 112, 126, AP Physics B, and AP Physics-C (E&M). Prerequisite(s): high school physics and calculus. Instructor(s): *Hannon*

PHYS 125 GENERAL PHYSICS (WITH LAB) (4)**General Physics (With Lab)**

Calculus-based survey of physics. Includes classes and lab exercises on topics chosen from mechanics, waves, electricity, magnetism, optics, and modern physics. Primarily for bioscience and premedical students. May receive credit for only one of PHYS 101, 111, 125, AP Physics-B, and AP Physics-C (MECH). Instructor(s): *Mutchler*

PHYS 126 GENERAL PHYSICS II (WITH LAB) (4)**General Physics II (With Lab)**

A continuation of PHYS 125. May receive credit for only one of PHYS 102, 112, 126, AP Physics B, and AP Physics-C (E&M). Prerequisite(s): PHYS 125 or equivalent. Instructor(s): *Mutchler*

PHYS 141 CONCEPTS IN PHYSICS I (3)**Concepts in Physics I**

Study of concepts in physics with emphasis on the nature of physical phenomena, the conceptual development of physics, and related cultural influences. Instructor(s): *Bonner*

PHYS 142 CONCEPTS IN PHYSICS II (3)**Concepts in Physics II**

For AP credit only.

PHYS 201 WAVES AND OPTICS (3)**Waves and Optics**

The third semester of the four-semester sequence in physics for science and engineering students. See PHYS 231. Instructor(s): *Staff*

PHYS 202 MODERN PHYSICS (3)**Modern Physics**

An introductory course in modern physics. Topics include special relativity, early quantum theory, quantum mechanics, atomic physics, statistical physics, nuclear and particle physics. The course is descriptive in nature with emphasis on phenomena rather than on calculations. Prerequisite(s): PHYS 101 and 102 or equivalent. Instructor(s): *Miettinen*

PHYS 203 ATMOSPHERE, WEATHER, & CLIMATE (3)**Atmosphere, Weather, and Climate**

This course emphasizes the fundamental science of the atmospheric system. Among the subjects to be covered quantitatively are climate changes, solar radiation and the Earth's energy budget, atmospheric motions and circulation, clouds and storms, and atmospheric environmental concerns. Also offered as NSCI 203. Instructor(s): *Few*

PHYS 231 ELEMENTARY PHYSICS LAB II (1)**Elementary Physics Lab II**

Laboratory on waves and optics. Co-requisite(s): PHYS 201 Instructor(s): *Dodds*

PHYS 301 INTERMEDIATE MECHANICS (4)**Intermediate Mechanics**

Classical mechanics and appropriate mathematical methods. Emphasis on problem solving. Instructor(s): *Huang*

PHYS 302 INTERMEDIATE ELECTRODYNAMICS (4)**Intermediate Electrodynamics**

Classical electrodynamics and appropriate mathematical methods. Emphasis on problem solving. Instructor(s): *Chan*

PHYS 311 INTRO QUANTUM PHYSICS I (3)**Introduction to Quantum Physics I**

Fundamentals of quantum mechanics and applications to atomic and molecular structure. Instructor(s): *Halet*

(F) = Fall; (S) = Spring

PHYS 312 INTRO QUANTUM PHYSICS II (3)**Introduction to Quantum Physics II**

Continuation of PHYS 311. Instructor(s): *Stevenson*

PHYS 331 JUNIOR PHYSICS LAB I (2)**Junior Physics Lab I**

Lab exercises in electronics, noise reduction, statistics and particle counting. Instructor(s): *Dodds*

PHYS 332 JUNIOR PHYSICS LAB II (2)**Junior Physics Lab II**

Lab exercises illustrating topics in the upper-division physics curriculum. Instructor(s): *Dodds*

PHYS 411 INTRO NUCLEAR & PARTICLE PHYSICS (3)**Introduction to Nuclear and Particle Physics**

A broad survey of the history and current state of nuclear and particle physics. The emphasis is on experimental results and how they led to our current understanding of the strong and electroweak interactions. Some recent advances are discussed in detail. Offered with additional work as PHYS 542. Instructor(s): *Corcoran*

PHYS 412 SOLID STATE PHYSICS (3)**Solid State Physics**

Introduction to topics in solid state physics, including crystal structure, lattice vibrations, electronic band structure and transport. Instructor(s): *Nordlander*

PHYS 416 COMPUTATIONAL PHYSICS (3)**Computational Physics**

Use of computational techniques to solve selected physics problems. Examine benefits and pitfalls of doing physics by computation. Enrollment limited to 25. Instructor(s): *Toffoletto*

PHYS 425 STATISTICAL & THERMAL PHYSICS (3)**Statistical and Thermal Physics**

Includes classical thermodynamics; classical & quantum statistical mechanics; Fermi, Bose, and classical gases; magnetic systems; and phase equilibria. Instructor(s): *Si*

PHYS 443 ATMOSPHERIC SCIENCE (3)**Atmospheric Science**

Subjects studied include radiation, climate dynamics; energy balance models; structure and stability; water, cloud and precipitation physics; atmospheric dynamics; storms and special systems; and atmospheric electricity. Prerequisite(s): open to upper-level undergraduates and graduate students in science and engineering with permission of instructor. Also offered as CEVE 443. Instructor(s): *Few*

PHYS 461 INDEPENDENT RESEARCH (HOURS VARIABLE)**Independent Research**

A reading course in special topics. Instructor(s): *Staff*

PHYS 462 INDEPENDENT RESEARCH (HOURS VARIABLE)**Independent Research**

A reading course in special topics. Instructor(s): *Staff*

PHYS 480 INTRODUCTION TO PLASMA PHYSICS (3)**Introduction to Plasma Physics**

Fundamental processes in cosmic and laboratory plasmas: gas dynamics, kinetic theory, magnetohydrodynamics, wave and shocks, individual particle drifts, collisions and electrical conductivities, geometric and distribution instabilities. Prerequisite(s): PHYS 302 (or equivalent). Instructor(s): *Cloutier*

PHYS 491 UNDERGRADUATE RESEARCH (2)**Undergraduate Research**

Research projects conducted under supervision of departmentally approved faculty. Open to juniors and seniors majoring in physics and astronomy. May be repeated for credit. PHYS 493/494 must be taken concurrently with PHYS 491/492 when used in partial fulfillment of B.S. degree requirements. Instructor(s): *Bonner*

PHYS 492 UNDERGRADUATE RESEARCH (2)**Undergraduate Research**

Research projects conducted under supervision of departmentally approved faculty. Open to juniors and seniors majoring in physics and astronomy. May be repeated for credit. PHYS 493/494 must be taken concurrently with PHYS 491/492 when used in partial fulfillment of B.S. degree requirements. Instructor(s): *Bonner*

(#) = credit hours per semester

PHYS 493 UNDERGRADUATE RESEARCH SEMINAR (1)**Undergraduate Research Seminar**

Weekly seminar for juniors and seniors in which presentations on research topics and/or topics in the scientific literature will be given. Open to juniors and seniors majoring in physics and astronomy. Instructor(s): *Bonner*

PHYS 494 UNDERGRADUATE RESEARCH SEMINAR (1)**Undergraduate Research Seminar**

Weekly seminar for juniors and seniors in which presentations on research topics and/or topics in the scientific literature will be given. Open to juniors and seniors majoring in physics and astronomy department. Instructor(s): *Bonner*

PHYS 510 MAGNETOSPHERIC PHYSICS (3)**Magnetospheric Physics**

Plasma physics of the earth's magnetosphere, including interactions of the magnetosphere with the solar wind, the ionosphere, and the neutral atmosphere. The emphasis is on large-scale physics, but small scale waves and instabilities are discussed in some detail in cases where they affect the large-scale phenomena. Prerequisite(s): PHYS 480 or equivalent. Course not offered 2004-2005. Instructor(s): *Staff*

PHYS 515 CLASSICAL DYNAMICS (3)**Classical Dynamics**

Lagrangian and Hamiltonian mechanics. Instructor(s): *Duck*

PHYS 516 MATHEMATICAL METHODS (3)**Mathematical Methods**

Survey of analytical and numerical methods used by research physicists and astronomers. Includes complex variables, the evaluation of integrals, variational calculus, ordinary and partial differential equations, special functions, and transform methods. Instructor(s): *Hill*

PHYS 519 PLASMA KINETIC THEORY (3)**Plasma Kinetic Theory**

Plasma kinetic equations (Klimontovich, Liouville, BBGKY, Balescu-Lenard, Fokker-Planck, Vlasov), Vlasov theory of waves and instabilities, connections to fluid plasma models. Instructor(s): *Chan*

PHYS 521 QUANTUM MECHANICS I (3)**Quantum Mechanics I**

Graduate level course on non-relativistic quantum mechanics. Topics include early quantum theory, one-dimensional systems, matrix formulation, quantum dynamics, symmetries and conservation laws, bound states, scattering, spin, and identical particles, perturbation theory. Prerequisite(s): At least one semester of undergraduate quantum mechanics. Instructor(s): *Miettiuen*

PHYS 522 QUANTUM MECHANICS II (3)**Quantum Mechanics II**

Continuation of PHYS 521.

PHYS 526 STATISTICAL PHYSICS (3)**Statistical Physics**

Selected topics in statistical mechanics, including phase transitions and transport phenomena. Instructor(s): *Huang*

PHYS 532 CLASSICAL ELECTRODYNAMICS (3)**Classical Electrodynamics**

Special relativity, covariant formulation of electrodynamics, wave phenomena and charged-particle radiation. Instructor(s): *Hill*

PHYS 533 NANOSTRUCTURE/NANOTECHNOLOGY (3)**Nanostructure and Nanotechnology I**

Physics of structures and devices at the nanometer scale After a review of solid state physics, topics include nanostructured materials, nanoelectronics, and nanomagnetism. Emphasis on relevance of nanophysics to current and future technologies. Instructor(s): *Natelson*

PHYS 534 NANOSTRUCTURE & NANOTECHNOLOGY II (3)**Nanostructure and Nanotechnology II**

Physics of structures and devices at the nanometer scale. Topics include nanomechanics, bionanotechnology, advanced sensors and photonics. Continuation of PHYS 533. Instructor(s): *Staff*

PHYS 535 CRYSTALLOGRAPHY & DIFFRACTION (3)**Crystallography and Diffraction**

Also offered as MSCI 535. Prerequisite(s): MSCI 301. Instructor(s): *Staff*

(F) = Fall; (S) = Spring

PHYS 537 METH EXPERIMENTAL PHYSICS I (4)**Methods of Experimental Physics I**

This two-semester course will familiarize students with basic experimental techniques that are common to all academic and industrial research laboratories. Topics will include lab safety, mechanical design, computer-based data acquisition and experimental control, laboratory electronics, vacuum technology, optics, thermal measurement and control, cryogenics and charged particle optics. Instructor(s): *Killian, Hafner*

PHYS 538 METH EXPERIMENTAL PHYSICS II (4)**Methods of Experimental Physics II**

Continuation of PHYS 537. Instructor(s): *Killian, Hafner*

PHYS 539 CHARACTER & FABRICATN NANOSCALE (3)**Characterization and Fabrication at the Nanoscale**

Introduction to study and creation of nanoscale structures, emphasizing relevant physical principles. Techniques covered include optical, X-ray, electron-based and scanned-probe characterization, as well as patterning, deposition and removal of material. Instructor(s): *Staff*

PHYS 541 RADIATIVE PROCESSES (3)**Radiative Processes**

Radiation processes and their applications to astrophysical phenomena and space science. The course treats radiation transfer, radiation from moving charges, relativistic covariance and kinematics, bremsstrahlung, synchrotron radiation, Compton scattering, some plasma effects, and radiative transitions in atoms and molecules. Instructor(s): *Hartigan*

PHYS 542 INTRO ELEMENT PARTIC PHYSICS (3)**Introduction to Elementary Particle Physics**

Graduate version of PHYS 411. Includes an introduction to the theory of elementary particles and the characteristic features of experimental data. Instructor(s): *Corcoran*

PHYS 543 PHYSICS OF QUARKS AND LEPTONS (3)**Physics of Quarks and Leptons**

A continuation of PHYS 542. Instructor(s): *Padley, Roberts*

PHYS 551 BIOLOGICAL PHYSICS (3)**Biological Physics**

Introduction to biological physics. Review of basic physical concepts. Cells and their components. Diffusion and random walks. Entropy and energy concepts and their roles in biological systems. Modern experimental methods. Applications to biological macromolecules. Instructor(s): *Ching-Hua Kiang*

PHYS 561 GENERAL RELATIVITY (3)**General Relativity**

Study of Einstein's theory of gravitation, including cosmological models. Prerequisite(s): PHYS 532. Course not offered 2004-2005. Instructor(s): *Staff*

PHYS 563 INTRO SOLID STATE PHYSICS I (3)**Introduction to Solid State Physics I**

Fundamental concepts of crystalline solids, including crystal structure, band theory of electrons, and lattice vibration theory. Also offered as ELEC 563. Instructor(s): *Kono*

PHYS 564 INTRO SOLID STATE PHYSICS II (3)**Introduction to Solid State Physics II**

Continuation of PHYS 563, including scattering of waves by crystals, transport theory, and magnetic phenomena. Instructor(s): *Staff*

PHYS 566 SURFACE PHYSICS (3)**Surface Physics**

An introduction to surface- and low-dimensional physics covering experimental surface physics and ultra-high vacuum technology, crystal structure, chemical analysis, epitaxy, nanoscale electronic and magnetic structures and devices, elementary excitations, optical properties and nano-scale sensitive magnetic and non-magnetic spectroscopies. Course not offered 2004-2005. Instructor(s): *Staff*

PHYS 568 QUANTUM PHASE TRANSITIONS (3)**Quantum Phase Transitions**

Introductory course for graduate students. Topics include the concepts of classical and quantum phase transitions, mean field theory, renormalization group and quantum phase transitions in magnetic, fermionic, and bosonic systems. Instructor: *Si*

(#) = credit hours per semester

PHYS 569 ULTRAFAST OPTICAL PHENOMENA (3)**Ultrafast Optical Phenomena**Also offered as ELEC 569. Instructor(s): *Staff***PHYS 571 MODERN ATOMIC PHYSICS (3)****Modern Atomic Physics**

This is an introductory course at the graduate level. Topics to be discussed include: atomic structure, principles of lasers, fundamental interactions of atoms with electro-magnetic radiation, including coherent effects, laser spectroscopy, quantum optics, and laser cooling and trapping of atoms, and Bose-Einstein condensation. Course not offered 2004-2005. Instructor(s): *Staff*

PHYS 572 FUNDAMENTAL OF QUANTUM OPTICS (3)**Fundamentals of Quantum Optics**

Discussion of quantization and statistical properties of light fields; interaction between atoms and light; non-classical states; basic laser theory; quantum effects of nonlinear optics; introduction to atom optics. Instructor(s): *Pu*

PHYS 600 ADVANCED TOPICS IN PHYSICS (3)**Advanced Topics in Physics**

Lecture/seminars which treat topics of departmental interest. Not offered every year. Instructor(s): *Rau*

PHYS 610 BIOLOGICAL AND MOLECULAR SIMUL (3)**Biological and Molecular Simulation**

Modern simulation techniques for classical atomistic systems. Monte Carlo and molecular dynamic techniques, with extensions to various ensembles. Applications to simulations of large molecules. Advanced techniques for simulation of complex systems, including constraint satisfaction, cluster movies, biased sampling and random energy models. Also offered as BIOE 610 Prerequisite(s): One of PHYS 526, CHEM 520, BIOE 589 or CENG 611, or permission of the instructor. Instructor(s): *Deem*

PHYS 622 ADVANCED QUANTUM MECHANICS II (3)**Advanced Quantum Mechanics II**

Study of QED, QCD, and unified theories. Course not offered 2004-2005. Instructor(s): *Staff*

PHYS 663 CONDENSED MATTER THRY:APLICATN (3)**Condensed Matter Theory: Application**

Applications of techniques developed in PHYS 664 Instructor(s): *Nordlander*

PHYS 664 COND MATTR THRY: MANY BODY FORM (3)**Condensed Matter Theory: Many-Body Formalism**

Formal structure of many-body theory as used in condensed matter physics. Course not offered 2004-2005. Instructor(s): *Staff*

PHYS 700 TEACHING PRACTICUM (3)**Teaching Practicum**

Supervised teaching for graduate students. Instructor(s): *Staff*

PHYS 800 GRADUATE RESEARCH (HOURS VARIABLE)**Graduate Research**

Thesis research under the supervision of department faculty. Instructor(s): *Staff*

PLSH (POLISH)**School of Humanities/Center for Study of Languages****PLSH 101 INTRODUCTION TO POLISH I (5)****Introduction to Polish I**

Emphasis on speaking and reading. A selection of textbooks and other materials (audio, video, Internet) are used in this beginners' course in the language of Polanski and the Pope. Enrollment limited to 20. Prerequisite(s): No prior knowledge of Polish. Instructor(s): *Skorczewski*

PLSH 102 INTRODUCTION TO POLISH II (5)**Introduction to Polish Language and Culture II**

Continuation of PLSH 101. Introductory study of Polish with emphasis on speaking and reading. A selection of textbooks and other materials (audio, video, Internet) are used in this beginners' course in the language of Polanski and the Pope. Enrollment limited to 20. Prerequisite(s): PLSH 101 or permission of the instructor. Instructor(s): *Skorczewski*

(F) = Fall; (S) = Spring

POLI (POLITICAL SCIENCE)

School of Social Sciences/Political Science

POLI 209 INTRO TO CONST. & POLI THOUGHT (3)

Introduction to Constitutionalism and Modern Political Thought

Study of constitutionalism and authoritarianism from Machiavelli to Marx. Includes an introduction to contemporary ideologies. With POLI 210 meets state professional requirements for teachers. Enrollment limited to 76.

POLI 210 AMERICAN GOVT AND POLITICS (3)

American Government and Politics

Major topics in American politics: public opinion, group politics, political parties, elections, congressional-presidential-bureaucratic politics, and judicial politics. Together with POLI 209 meets state professional requirements for teachers. Enrollment limited to 76.

POLI 211 INTRO INTERNATIONAL RELATIONS (3)

Introduction to International Relations

An introduction to the study of international relations. The course examines topics from the role of individuals to the impact of the international system. Major issues, such as the causes of war and problems of development in the Third World are also discussed. Enrollment limited to 76.

POLI 212 INTRO TO COMPARATIVE POLITICS (3)

Introduction to Comparative Politics

An examination of political institutions and behavior in selected democratic, communist, and Third World countries. Enrollment limited to 40.

POLI 250 INTERN'L POL ECONOMY OF GENDER (3)

International Political Economy of Gender

This course explores the relationship between women's lives, gender ideologies, and international and domestic politics and economics. We will examine women's experiences with and resistance to the sexual division of labor, imperialism, capitalism, consumerism, domestic service, war, slavery, and migration across different geographical and historical contexts. Also offered as WGST 250.

POLI 300 FEDERALISM & INTERGOVERN POLITIC (3)

Federalism and Intergovernmental Politics

An exploration of the politics, demographics, technology, and legal environment of twenty-first century legislative redistricting. In addition to lectures and readings, the course includes an introduction to a computer based geographical information system that the students will use to complete a redistricting simulation. Enrollment limited to 20.

POLI 301 STATE POLITICS (3)

State Politics

This course is organized around the themes of the constraints and influences on the adoption and implementation of public policies in the American states. Enrollment limited to 40.

POLI 305 DIRECTED READING I (3)

Directed Reading I

Independent reading under the supervision of a member of the department. Open to junior majors in the honors program and to others in special cases with the permission of the instructor.

POLI 306 DIRECTED READING II (3)

Directed Reading II

See POLI 305. Prerequisite(s): Permission of instructor required.

POLI 307 POLITICAL SCIENCE INTERNSHIP I (2)

Political Science Internship I

This course is the in-class component of the political science internship program. Students will read both a common set of materials and a set that is oriented to their forthcoming internship. A final paper is required. Prerequisite(s): Permission of instructor required.

POLI 308 POLI SCIENCE INTERNSHIP II (HOURS VARIABLE)

Political Science Internship II

This course is the work component of the political science internship program. Students will be required to submit weekly progress reports and a final portfolio. Prerequisite(s): Permission of instructor required.

(*) = credit hours per semester

POLI 315 ELECTIONS AND VOTING BEHAVIOR (3)**Elections and Voting Behavior**

Exploration of voting behavior and elections. Includes consideration of both individual level behavior and aggregate level patterns of election results. Enrollment limited to 40.

POLI 317 THE CONGRESS (3)**The Congress**

Examines the role of Congress in the American political system. Attention is given to the historical development of Congress, the current status of the Congress, and the functions of Congress in the American political system. Enrollment limited to 40.

POLI 318 THE PRESIDENCY (3)**The Presidency**

Analysis of presidential powers and behavior in the context of legal, electoral, personal, and other forces that shape and limit the actions of the President. Enrollment limited to 40.

POLI 321 AMER CONSTITUTIONAL LAW (3)**American Constitutional Law**

Interpretation of the Constitution by the Supreme Court. (Juniors and Seniors preferred). Enrollment limited to 50.

POLI 330 MINORITY POLITICS (3)**Minority Politics**

Examination of the political and social position of minority groups (African Americans, Asian Americans, Native Americans, Latinos, and women) in the U.S. This course explores the political power and behavior of these groups. The key concepts include racism, discrimination, resources, political power, culture, leadership, class, and inequality. Enrollment limited to 30.

POLI 331 ENVIRON POLITICS & POLICY (3)**Environmental Politics and Policy**

This course considers the major issues in the increasingly important public policy area of the environment. It emphasizes the American experience, but also considers certain crucial international aspects of these issues.

POLI 332 URBAN POLITICS (3)**Urban Politics**

Exploration of issues of political behavior and public policy in urban and metropolitan areas. Includes urban decline, regional governance, revitalization, and issues of ethnic and racial conflict. Enrollment limited to 40.

POLI 333 COMPARATIVE LEGISLATURES (3)**Comparative Legislatures**

Examination of similarities and differences of legislatures in different countries. Includes the causes and consequences of these differences. See also POLI 433. Enrollment limited to 30.

POLI 334 PARTIES & INTEREST GROUPS (3)**Parties and Interest Groups**

Examination of the organization and behavior of political parties and interest groups within the American political system, with emphasis on the extent to which these organizations operate differently across the national, state, and local levels of government. Enrollment limited to 30.

POLI 335 POLI ENVIRONMENT OF BUSINESS (3)**Political Environment of Business**

Study of the foundation of government involvement in public policy and the institutional process guiding executive, legislative, and bureaucratic officials. Includes theories of collective action and their application in the political world. Enrollment is limited to 40.

POLI 336 POLITICS OF REGULATION (3)**Politics of Regulation**

This course will focus principally on government regulation of business and the political factors that shape its content. Enrollment limited to 40.

POLI 337 PUBLIC POLICY AND BUREAUCRACY (3)**Public Policy and Bureaucracy**

Exploration of the role that public bureaucracy plays in national policy making. Includes an examination of sources of agency power, which are linked to different policy outcomes. Enrollment limited to 40.

POLI 338 POLICY ANALYSIS (3)**Policy Analysis**

This class familiarizes students with the analytical tools necessary for evaluating and analyzing public policies. Enrollment limited to 30. Also offered as SOSC 301.

(F) = Fall; (S) = Spring

POLI 339 SOUTHERN POLITICS (3)**Southern Politics**

Examination of selected political patterns and trends in the modern South. Includes political developments within the region and the impact of the South on American politics generally. Enrollment limited to 40.

POLI 341 GENDER AND POLITICS (3)**Gender and Politics**

Examination of politics through the lens of gender hierarchy. Emphasis on how the constructions of masculinity and femininity shape and are shaped by interacting economic, political, and ideological practices. Enrollment limited to 30.

POLI 342 POLITICS OF THE JUDICIARY (3)**Politics of the Judiciary**

Explores the role of courts and judges in American politics. Will illustrate major characteristics of judicial institutions in the U.S. and provide understanding of forces influencing judicial decisions. Will cover federal and state organization of trial and appellate courts, judicial selection methods, and the politics of judicial decision-making. Enrollment limited to 75.

POLI 351 POLITICS OF SOUTHEAST ASIA (3)**Politics of Southeast Asia**

Political processes, institutions, and attitudes in selected Southeast Asian states. Emphasis on the postwar period, but traditional forces influencing contemporary political behavior also considered.

POLI 353 REFORM IN POST-MAO CHINA (3)**Reform in Post-Mao China**

Study of origins and development of the gradual but revolutionary political and economic reforms in China, emphasis on changing roles of the Communist Party, the central bureaucracy and local governments, the military, of emerging entrepreneurial class, and the 80 million members of the overseas Chinese community. Enrollment limited to 40.

POLI 354 LATIN AMERICAN POLITICS (3)**Latin American Politics**

Study of the political process in contemporary Latin America, with emphasis on selected major countries. Enrollment limited to 40.

POLI 355 GOVERNMENT & POLITICS MID EAST (3)**Government and Politics of the Middle East**

Provides an introduction to politics in the Middle East. Brief historical overview is combined with detailed description of political systems in the area. The region is then used to examine empirically, critique and revise theories of comparative politics. Emphasis on whether the region would be considered unique or exceptional. Enrollment limited to 40.

POLI 356 POLITIC LATIN AMER ECON DEVELP (3)**The Politics of Latin American Economic Development**

This course examines the evolution of economic development in Latin America, focusing on its political foundations. Special attention will be given to the interaction between economic growth and the construction of democratic political institutions in Latin America. Enrollment limited to 40.

POLI 357 DEMOCRACY AND DEMOCRATIZATION (3)**Democracy and Democratization**

This course will examine the theoretical and practical idea of democracy. It will do so by trying to explore the following questions: What is democracy? How does democracy arise? How may democracy survive and consolidate? Enrollment limited to 40.

POLI 360 WESTERN EUROPEAN DEMOCRACIES (3)**Western European Democracies**

A survey of government and politics in Western European democracies, with primary emphasis on Great Britain, France, and Germany. Enrollment limited to 40.

POLI 362 EUROPEAN INTEGRATION (3)**European Integration**

Examines the process of European integration since World War II. Special attention is given to the European Community (EC), its institutions and policy processes as well as the consequences of European Unity for the political process in European societies.

(#) = credit hours per semester

POLI 367 SOVIET & POST-SOVIET POLITICS (3)**Soviet and Post-Soviet Politics**

This course will examine the political system of the Soviet Union, why it lasted and why it collapsed. It will focus on the transition from Soviet rule to market democracy and the various problems of transition across the former Soviet republics. Enrollment limited to 30.

POLI 372 AMERICAN FOREIGN POLICY (3)**American Foreign Policy**

Examination of internal and external aspects of foreign policy leadership, presidential initiative, congressional control, press, public opinion, and crisis management. Not a Managerial Studies elective. Enrollment limited to 40.

POLI 373 INTERNATIONAL CONFLICT (3)**International Conflict**

Exploration of the theoretical basis of, and empirical evidence for, a number of explanations for interstate war. Includes contemporary theories dealing with dispute escalation, arms races, deterrence, crisis management, and low-intensity conflict. Enrollment limited to 40.

POLI 374 STRATEGIC INTERACT INTERN'L REL (3)

Strategic Interactions in International Relations Introduction to the uses of game theory in the study of international relations. Enrollment limited to 25.

POLI 375 INTERNATIONAL ORGANIZATION (3)**International Organization**

Study of the development and role of international organizations in world politics. Topics include the history and evolution of international organizations, the effects of international law on behavior, and the extent to which international cooperation has been effective at resolving global problems. Enrollment is limited to 25.

POLI 378 POLITICS OF AMER NATL SECURITY (3)**Politics of American National Security**

Examination of major issues of national security policy. Includes strategic doctrines, policy-making processes on defense issues, arms control, and the defense of Europe. Not a managerial studies elective. Enrollment limited to 76.

POLI 379 PROB INTERNATIONAL RELATIONS (3)**Problems in International Relations**

Explores the relationship between politics and economics. The objective is to understand the historical development of trade and monetary relationships between the countries of the world.

POLI 380 POLITICAL BEHAVIOR (3)**Political Behavior**

Examines basic concepts in political behavior including political socialization, models of voting behavior, public opinion, and political participation.

POLI 382 PUB OPINION, POLLING, & THE MEDIA (3)**Public Opinion, Polling, and the Media**

Covers survey research methodology as it applies to political opinion polling. Attention is given to theories of attitude formation and change, the impact of the media on public opinion, and measurement issues in the survey research process. Prior coursework in the social sciences is required.

POLI 395 INTRO TO STATISTICS (3)**Introduction to Statistics**

Introduction to research design and quantitative methods used in contemporary political science research. Students will apply the tools of social science inquiry in a series of projects designed to examine political attitudes and behavior. Enrollment limited to 40.

POLI 401 STATE POLITICS RESEARCH SEM (3)**State Politics Research Seminar**

A research seminar in state politics and policy with an emphasis on state institutions.

POLI 405 SENIOR THESIS (3)**Senior Thesis**

Open to senior honors majors with the permission of the department. Students must complete both POLI 405 and 406 to obtain credit.

POLI 406 SENIOR THESIS (3)**Senior Thesis**

See POLI 405. Prerequisite(s): Permission of instructor required.

(F) = Fall; (S) = Spring

POLI 418 SEMINAR ON THE PRESIDENCY (3)**Seminar on the Presidency**

Provides students with a broad introduction to the presidency. Topics include a review of the executive's constitutional powers and their changes over time; processes and politics of presidential nomination and election; struggles between the president and other political elites and dynamics of White House decision-making. Enrollment limited to 13.

POLI 422 AMERICAN POLITICAL DEVELOPMENT (3)**American Political Development**

Examines the creation and evolution of American political institutions using new institutionalism as a theoretical perspective. New institutionalism focuses on how rules influence the behavior of individuals, having important consequences for political outcomes. Explores the impact of political preferences on congressional development, political parties, interest groups, and bureaucratic agencies. Enrollment limited to 13.

POLI 425 POLITICAL SOCIOLOGY (3)**Political Sociology**

Can democracy survive its enemies: tyranny of ruling elites and classes, tyranny of the majority, ethnic and religious conflict, individualism, government secrecy, citizen apathy? Enrollment limited to 15. Also offered as SOCI 425.

POLI 430 SEMINAR IN TEXAS POLITICS (3)**Seminar in Texas Politics**

Research seminar in the history of Texas politics. Enrollment limited to 13. Prerequisite(s): Permission of instructor required.

POLI 431 ELECTORAL CAMPAIGNS (3)**Electoral Campaigns**

Examines the role of campaigns in determining the outcome of political races.

POLI 432 URBAN POLITICS (3)**Urban Politics**

Enriched version of POLI 332, conducted as a research seminar. Enrollment limited to 13.

POLI 433 COMPARATIVE LEGISLATURES (3)**Comparative Legislatures**

Enriched version of POLI 333, conducted as a research seminar.

POLI 434 PUBLIC POLICY & METRO AREA GOV'T (3)**Public Policy and Metropolitan Area Governance**

This course will examine the market-like relationship among metropolitan area governments. It will address questions of urban/suburban relationships as well as policy topics such as education and local service provision. Enrollment is limited to 15.

POLI 435 POLITICAL PARTICIPATION (3)**Political Participation**

Seminar will consider normative issues, theories, and empirical evidence relating to the value, meaning, and consequences of political participation, with readings taken from American and comparative politics. Enrollment limited to 13.

POLI 436 POLITICS OF REGULATION (3)**Politics of Regulation**

Study of the government's regulation of business and the political factors that shape its content. Enrollment limited to 13.

POLI 437 EDUCATION POLICY (3)**Education Policy**

Examines educational politics and policy from micro and macro perspectives. We will focus on school governance, structure, and finance at the federal, state, and local levels and examine the design, implementation and effects of various school reform initiatives in U.S., and to a more limited extent in other countries. Enrollment limited to 13.

POLI 438 RACE AND PUBLIC POLICY (3)**Race and Public Policy**

Study of minority group politics and how race structures contemporary U.S. politics. Includes myths and realities of minority groups, symbolic politics and race, pluralism as a model of U.S. democracy, the intersection of class, race, and gender, civil rights movements, group consciousness, public opinion regarding minorities, and responses of national institutions to race issues. Enrollment limited to 13.

(#) = credit hours per semester

POLI 439 RSRCH SEM ON SOUTHERN POLITICS (3)**Research Seminar on Southern Politics**

Examination of political behavior and political institutions in the southern states, with emphasis on contemporary Texas politics. Enrollment limited to 13.

POLI 441 COMMON PROPERTY RESOURCES (3)**Common Property Resources**

Common Property Resources (CPRs), such as fisheries, aquifers, and the Internet, appear in many guises and pose a fundamental problem for governing. Exploration of theoretical underpinnings for CPRs, their growing literature, and the political and economic institutions mediating CPR dilemmas. Included is an original research project in conjunction with the instructor. Enrollment limited to 13.

POLI 456 REGIME TRANSFORM&TRANSITIONS (3)**Regime Transformations and Transitions**

Examines why political systems may change from democratic to authoritarian, or vice versa. Distinguishes between different regime types and explores the conditions promoting social movements, political unrest, and military coups. Examines factors that help to consolidate newly formed regimes. Examples are drawn from a variety of postcolonial states. Enrollment limited to 13.

POLI 457 CONDITIONS OF DEMOCRACY (3)**Conditions of Democracy**

This course starts with definitions and theories/preconditions of democracy and then looks at specific cases of democratic transition throughout the world, democratic consolidation, reaction, and the prospects for the future. Enrollment limited to 13.

POLI 460 SEM IN COMPARATIVE GOVERNMENT (3)**Seminar in Comparative Government**

This seminar will analyze authoritarian regimes from a comparative perspective.

POLI 462 COMPARATIVE PUBLIC POLICY (3)**Comparative Public Policy**

Seminar examining the process and substance of public policy across nations, with emphasis on social policy in industrialized democracies. Enrollment limited to 13.

POLI 463 COMPARATIVE POLITICAL ECONOMY (3)**Comparative Political Economy**

Seminar exploring the interrelationship of economics and politics in advanced industrial societies. Includes economic policy making, political behavior and economic conditions, and the role of institutions in channeling conflicts between democracy and capitalism. Enrollment limited to 13.

POLI 464 POLITICAL ECONOMY OF DEV (3)**Political Economy of Developing Nations**

A central priority developing nations face today concerns establishing economic growth. How best to achieve strong economic performance has both an economic and political dimension. This course seeks a rudimentary understanding of economic growth, concentrating on its political determinants.

POLI 466 WESTERN DEMOCRACIES (3)**Western Democracies**

This seminar will deal with the determinants of party systems, the structure and functions of parties, and theories of voting behavior in Western democracies. Enrollment limited to 13.

POLI 470 INTERNATIONAL RELATIONS (3)**International Relations**

Conflict modeling and quantitative analysis of alliance formation. Enrollment limited to 13.

POLI 472 AMERICAN FOREIGN POLICY (3)**American Foreign Policy**

The content of American foreign policy, its sources, and the process of policy formulation.

POLI 475 INTERNATIONAL COOPERATION (3)**International Cooperation**

Research seminar on theories and evidence of international cooperation. The course will explore conditions conducive to establishing and maintaining cooperation in international politics, the design of international agreements and institutions, and the influence of international agreements and institutions of international relations. Enrollment limited to 13.

(F) = Fall; (S) = Spring

POLI 476 INTERNAT'L POLITICAL ECONOMY (3)**International Political Economy**

This course is designed to survey the theoretical and empirical analysis of the politics of international economic relations. In particular, the course is designed to examine the interrelationships of economics and politics by applying economic theory to the study of politics. Enrollment limited to 13.

POLI 477 DOMESTIC POLI&INTERN'L REALTIO (3)**Domestic Politics and International Relations**

Seminar on the influence of domestic politics on international relations. The course will explore when, why, and how the political, economic, and social conditions within countries affect international political and economic relations. Enrollment limited to 13.

POLI 479 SEM-QUANT INTERN'L RELATIONS (3)**Seminar in Quantitative International Relations**

Seminar exploring the quantitative study of international relations, with a focus on the study of international conflict. Students will be required to write a quantitative research paper. Prerequisite(s): Permission of the instructor. Enrollment limited to 15.

POLI 480 SEM IN POLITICAL BEHAVIOR (3)**Seminar in Political Behavior**

Undergraduate research seminar covering the field of political behavior with special emphasis on the application of social and cognitive psychology to the study of mass political behavior. Topics include political socialization, models of voting behavior, and political participation. Enrollment limited to 13.

POLI 490 MODERN POLI THEORY & INTERDISCIPL (3)**Modern Political Theory and Interdisciplinary Fields**

Study of the development of modern political theory and its relevance to contemporary problems. Enrollment limited to 13.

POLI 495 INTRODUCTION TO STATISTICS (3)**Introduction to Statistics**

This course aims at providing students with a working knowledge of statistics in political science. It involves the study of descriptive and inferential statistics, as well as hands-on experience with computer statistical packages.

POLI 502 INTRODUCTION TO STATISTICS (3)**Introduction to Statistics**

This course aims at providing students with a working knowledge of statistics in political science. It involves the study of descriptive and inferential statistics, as well as hands-on experience with computer statistical packages. Also offered as STAT 495. Enrollment limited to 13.

POLI 503 TOPICS METHODS & DATA ANALYSIS (3)**Topics in Methods and Data Analysis**

Applications of least squares and general linear model. Also offered as STAT 503.

POLI 504 METHODOLOGY AND DATA ANALYSIS (3)**Methodology and Data Analysis**

Study of applications of maximum likelihood estimation. Enrollment limited to 13.

POLI 510 SCOPE AND METHODS (3)**Scope and Methods**

Introduction to research in political science, problems of the discipline, and basic political concepts. Includes the history of political science as a discipline. Enrollment limited to 13.

POLI 511 MEASUREMENT & RESEARCH DESIGN (3)**Measurement and Research Design**

Study of advanced topics in research design and measurement theory. Enrollment limited to 13.

POLI 520 APPROACHES TO COMPARATIVE GOVT (3)**Approaches to Comparative Government**

Core graduate course analyzing basic approaches to the study of comparative government. Open to qualified undergraduates with permission of instructor. Enrollment limited to 13.

POLI 527 INSTITUTIONAL ANALYSIS (3)**Institutional Analysis**

Examination of applications of organization theory to the study of American political institutions. Enrollment limited to 13.

(#) = credit hours per semester

POLI 530 APPROACHES TO AMERICAN GOV'T (3)**Approaches to American Government**

Core graduate course. Includes an analysis of basic approaches to the study of American politics. Enrollment limited to 13.

POLI 531 STATE POLITICS (3)**State Politics**

Examines similarities and differences in the organization of state politics. Major issues include state legislative organization, state elite behavior, and policy implementation. Enrollment limited to 13.

POLI 532 COMPARATIVE LEGISLATURES (3)**Comparative Legislatures**

Provides the student with the basic concepts and theories necessary to understand the functions and organization of legislatures/parliaments/assemblies in democratic societies. This course takes a broad-based perspective, including research that focuses on national parliaments and U. S. state legislatures. Enrollment limited to 13.

POLI 533 ADV TOPIC POLITICAL BEHAVIOR (3)**Advanced Topics in Political Behavior**

Graduate research seminar in the subfield of political behavior. Content varies from year to year. Enrollment limited to 15.

POLI 534 INTEREST GROUP&POLITICAL PARTY (3)**Interest Groups and Political Parties**

Graduate research seminar in the subfields of interest groups and political behavior. Enrollment limited to 13.

POLI 535 RACE, ETHNICITY & AMER POLITICS (3)**Race, Ethnicity, and American Politics**

Graduate seminar that examines the role of race and ethnicity in American politics. This course provides an examination of the behavioral and electoral implications of racial and ethnic diversity. Enrollment limited to 13.

POLI 537 PUBLIC POLICY AND BUREAUCRACY (3)**Public Policy and Bureaucracy**

Study of the administration and implementation of public policies across federal, state, and substate governments. Enrollment limited to 13.

POLI 538 POL ECONOMY OF POLICY CHANGE (3)**Political Economy of Policy Change**

This course will explore policy and political change primarily, but not exclusively, in the United States. Using a political economy approach, we will explore different models of change and identify the actors, institutions, and conditions that facilitate stability in change in state, local and national policymaking. Enrollment limited to 13.

POLI 540 INTERNATIONAL RELATIONS (3)**International Relations**

Core graduate course. Includes an analysis of basic approaches to the study of international relations. Open to qualified undergraduates with permission of instructor. Enrollment limited to 13.

POLI 541 INTERNATIONAL COOPERATION (3)**International Cooperation**

Graduate seminar on theories and evidence of international cooperation. Discussion of the difficulties in establishing cooperation under anarchy and the conditions under which international cooperation is most likely to occur. Enrollment limited to 13.

POLI 564 POLI ECONOMY OF DEVELOPMENT (3)**Political Economy of Development**

A central priority developing nations face today concerns establishing economic growth; how best to achieve strong economic performance has both an economic and political dimension. This course seeks a rudimentary understanding of economic growth, concentrating on its political determinants. Enrollment limited to 13.

POLI 565 POLITICAL PROTEST (3)**Political Protest**

This course looks at various theories of collective action and social movements. It will examine theoretical debates about why individuals and groups occasionally redress their grievances through protest and more often endure hardships passively. It will evaluate the relative merit of these theories in explaining cases of protest and passivity worldwide. Enrollment limited to 13.

(F) = Fall; (S) = Spring

POLI 567 COMPARATIVE POLITICAL BEHAVIOR (3)**Comparative Political Behavior**

In this course we will explore the nature and sources of cross-national differences in mass political behavior. Enrollment limited to 13.

POLI 570 SEM IN INTERNATIONAL CONFLICT (3)**Seminar In International Conflict**

Seminar in international conflict. Emphasis on formal theories and quantitative analysis of the causes of war. Enrollment is limited to 13.

POLI 572 FOREIGN POLICY DECISION MAKING (3)**Foreign Policy Decision Making**

Study of foreign policy, its sources, and the process of policy formulation. Enrollment limited to 13.

POLI 574 COLLECTIVE SOCIAL CHOICE (3)**Collective Social Choice**

Introduction to a growing body of literature on how and why individual preferences dominate those of others. Includes the relationship between decision-making structures and the nature of decisional outcomes. Enrollment limited to 13.

POLI 575 GAME THEORY (3)**Game Theory**

Examination of current developments in game theory with application to political science. Enrollment limited to 13.

POLI 576 INTERNAT'L POLITICAL ECONOMY (3)**International Political Economy**

Seminar surveying some of the primary theoretical perspectives and analytical approaches for studying international political economy. Includes a survey of contemporary literature, with special emphasis on theory and research, as well as instructions in how to critically evaluate research and set up a research project. Enrollment limited to 15.

POLI 579 SEM MODELING INTERN'L RELATION (3)**Seminar in Modeling International Relations**

Topic varies from year to year. Enrollment limited to 13.

POLI 580 SEM IN AMERICAN POLITICS (3)**Seminar in American Politics****POLI 591 DIRECTED READING-METHODOLOGY (3)****Directed Reading-Methodology****POLI 592 DIRECTED READING METHODOLOGY (3)****Directed Reading Methodology****POLI 593 DIRECTED READING-AMER POLITICS (3)****Directed Reading-American Politics****POLI 594 DIR READING AMERICAN POLITICS (3)****Directed Reading American Politics****POLI 595 DIR READ-INTERN'T'L RELATIONS (3)****Directed Reading-International Relations****POLI 596 DIR READ-INTERNAT'L RELATIONS (3)****Directed Reading-International Relations**

Prerequisite(s): Permission of instructor required.

POLI 597 DIR READ-COMPARATIVE POLITICS (3)**Directed Reading-Comparative Politics****POLI 598 DIR READ-COMPARATIVE POLITICS (3)****Directed Reading-Comparative Politics**

Prerequisite(s): Permission of instructor required.

POLI 599 TEACHING POLITICAL SCIENCE (1)**Teaching Political Science**

This course prepares graduate students to design and teach classes at the college level.

(#) = credit hours per semester

POLI 600 MA RESEARCH AND THESIS (HOURS VARIABLE)**Ma Research and Thesis**

Research and thesis for resident students. Prerequisite(s): Permission of instructor required.

POLI 800 PHD RESEARCH AND THESIS (HOURS VARIABLE)**PhD Research and Thesis**

Prerequisite(s): Permission of instructor required.

PORT (PORTUGUESE)**School of Humanities/Center for Study of Languages****PORT 101 INTRODUCTION TO PORTUGUESE I (5)****Introduction to Portuguese Language and Culture I**

Introduction to the study of the Portuguese language and culture with emphasis on the development of listening, speaking, reading and writing. This course uses textbooks as well as music, websites and videos for access to various kinds of cultural material and pretexts for communication. Includes one hour/wk of lab work. Prerequisite(s): No prior knowledge of Portuguese. Enrollment limited to 20. Instructor(s): *Bloem*

PORT 102 INTRODUCTON TO PORTUGUESE II (5)**Introduction to Portuguese Language and Culture II**

Continuation of PORT 101. Enrollment limited to 20. Prerequisite(s): PORT 101, placement test, or permission of the instructor. Instructor(s): *Bloem*

PORT 201 INTERMEDIATE PORTUGUESE I (4)**Intermediate Portuguese Language and Culture I**

Students progress to more creative oral and written communicative activities. Texts, music, videos, and the internet will be used to address a wide variety of topics and real-life situations. Enrollment limited to 20. Prerequisite(s): PORT 102, placement test or permission of the instructor. Instructor(s): *Bloem*

PORT 202 INTERMEIATE PORTUGUESE II (4)**Intermediate Portuguese Language and Culture II**

Students will continue to develop communicative competence in oral and written Portuguese using texts, music, films, and the web as sources for authentic cultural material in diverse areas. Course not offered 2004-2005 Enrollment limited to 20. Prerequisite(s): PORT 201, placement test, or permission of instructor. Instructor(s): *Bloem*

PORT 400 INDEPENDENT STUDY (3)**Independent Study**

No description. Instructor(s): *Bloem*

PORT 401 INDEPENDENT STUDY (3)**Independent Study**

No description. Instructor(s): *Bloem*

PSYC (PSYCHOLOGY)**School of Social Sciences/Psychology****PSYC 101 INTRODUCTION TO PSYCHOLOGY (3)****Introduction to Psychology**

Survey of topics, problems, and approaches in contemporary psychology. Includes the biological basis of behavior, sensation, perception, attention, learning and memory, thinking, language, abnormal behavior and therapies, personality and individual differences. Required for psychology majors. Instructor(s): *Schneider, Pomerantz, Staff*

PSYC 102 READINGS IN INTRO PSYCHOLOGY (1)**Readings in Introductory Psychology**

Discussion of articles and research reports in psychology. Instructor(s): *Staff*

PSYC 202 INTRO TO SOCIAL PSYCHOLOGY (3)**Introduction to Social Psychology**

Overview of topics in social psychology. Includes conformity and social influence, attitude change and the mass media, aggression, altruism, relationships, liking and loving, prejudice and stereotyping, and socialization. Required for psychology majors. Prerequisite(s): PSYCH 101 Instructor(s): *Beal, Schneider*

(F) = Fall; (S) = Spring

PSYC 203 INTRODUCTION COGNITIVE PSYC (3)**Introduction to Cognitive Psychology**

An introduction to topics in cognitive psychology including perception, memory, psycholinguistics, problem solving and decision making. Required for psychology majors. Prerequisite(s): PSYCH 101. Instructor(s): *Ro, Burgund*

PSYC 231 INDUS. & ORGANIZATIONAL PSYC (3)**Industrial and Organizational Psychology**

An overview of the principles, techniques, and theories of psychology applied in the industrial setting. Prerequisite(s): PSYC 101 Instructor(s): *Hebl, Staff*

PSYC 308 MEMORY (3)**Memory**

Critical review of traditional and contemporary approaches to the study of remembering and forgetting. Enrollment limited to 50. Prerequisite(s): PSYC 101, PSYC 203, or permission of the instructor. Instructor(s): *Watkins*

PSYC 309 PSYCHOLOGY OF LANGUAGE (3)**Psychology of Language**

Study of human and other animal communication. Prerequisite(s): PSYC 101, PSYC 203, or permission of the instructor. Also offered as LING 309. Course Not Offered 2004–2005.

PSYC 315 SEMANTICS: INTRO STUDY MEANING (3)**Semantics: Introduction to the Study of Meaning**

Introduction to basic approaches to the study of meaning in linguistics and related fields. Includes the cognitive representation of meaning, lexical categorization, conceptual structures, metaphor/metonymy, meaning change, pragmatic inference, and the relation of language and mind. Also offered as LING 315. Prerequisite: PSYCH 101, 203, LING 200, or permission of the instructor. Instructor: *Kemmer*

PSYC 321 DEVELOPMENTAL PSYCHOLOGY (3)**Developmental Psychology**

Study of behavioral changes with age and general laws in both human and nonhuman species. Instructor(s): *Chen*

PSYC 329 PSYCHOLOGICAL TESTING (3)**Psychological Testing**

Techniques for measuring individual differences and critical review of theories of individual differences in intelligence and personality. Course not offered 2004–2005.

PSYC 330 PERSONALITY THEORY & RESEARCH (3)**Personality Theory and Research**

Examination of those aspects of personality emphasized by major theorists past and present. Enrollment limited to 50. Prerequisite(s): PSYC 101, 202, or permission of the instructor. Instructor(s): *Beier*

PSYC 331 PSYCHOLOGY OF GENDER (3)**Psychology of Gender**

Overview of research and theory on gender in psychology. Also offered as WGST 331. Course not offered 2004–2005.

PSYC 332 ABNORMAL BEHAVIOR (3)**Abnormal Behavior**

Study of the diagnosis and treatment of mental disorders. Enrollment limited to 70. Prerequisite(s): Psych 101. Instructor(s): *Potts*

PSYC 339 STATISTICAL METHODS-PSYCHOLOGY (4)**Statistical Methods-Psychology**

Introduction to quantitative and computer methods applicable to the analysis of experimental data. Required for psychology majors. Also offered as STAT 339. Enrollment limited to 50. Prerequisite(s): PSYC 101 or permission of the instructor. Instructor(s): *Dannemiller, Lane*

PSYC 340 RESEARCH METHODS (4)**Research Methods**

A continuation of PSYC 339, with emphasis on individual student experiments and the writing of research reports. Required for psychology majors. Enrollment limited to 25. Prerequisite: Psych 101, 339, or permission of the instructor. Instructor(s): *Chen, Burgund, Watkins*

PSYC 342 COMPUTER APPLICATIONS (3)**Computer Applications**

The use of computers in psychological research and in usability engineering. The emphasis will be on dynamic HTML and JavaScript. Topics will include designing and running psychology experiments to run on the web and the use of web-based video. Enrollment limited to 10. Course not offered 2004–2005.

(#) = credit hours per semester

PSYC 350 PSYCHOLOGY OF LEARNING (3)**Psychology of Learning**

A consideration of historically important and modern perspectives on learning. Both human and animal research will be discussed. Course not offered 2004–2005.

PSYC 351 PSYCHOLOGY OF PERCEPTION (3)**Psychology of Perception**

Overview of the sensory and cognitive processes involved in human vision and audition. Offered in alternate years. Prerequisite(s): PSYC 101 and 203, or permission of the instructor. Instructor(s): *Pomerantz*

PSYC 360 THINKING (3)**Thinking**

Study of the higher mental processes. Includes concept formation, problem solving, decision making, and reasoning. Course not offered 2004–2005.

PSYC 362 BIOPSYCHOLOGY (3)**Biopsychology**

Overview of the neurophysiological correlates of behavior. Prerequisite(s): PSYC 101 Instructor(s): *Potts*

PSYC 370 HUMAN FACTORS & ERGONOMICS (3)**Introduction to Human Factors and Ergonomics Design**

Application of principles of psychology and human performance to the design of modern systems. Enrollment limited to 50. Prerequisite: PSYC 101, 203, or permission of the instructor. Instructor(s): *Byrne*

PSYC 409 HUMAN-COMPUTER INTERACTION (3)**Methods in Human-Computer Interaction**

Introduction to methods for developing and testing user interfaces to computer systems. The focus is on web-based applications. Enrollment limited to 12. Prerequisite(s): PSYC 101, 203, or permission of the instructor. Instructor(s): *Lane*

PSYC 411 HISTORY OF PSYCHOLOGY (3)**History of Psychology**

Survey of evolution of psychological theory from the Greeks to the present. Includes development of scientific approaches to the study of human thought and behavior. Instructor(s): *Schneider*

PSYC 430 COMPUTATIONAL MODELING (3)**Computational Modeling Cognitive Processes**

A survey of computational approaches to cognitive processes. The emphasis will be on recent production models, but other approaches will be covered as well. The course will involve evaluation of existing models and hands-on experience in modeling. Course not offered 2004–2005.

PSYC 431 ADV INDUS'L/ORGAN'L PSYCHOLOGY (3)**Advanced Industrial/Organizational Psychology Seminar**

An emphasis on reading original published research. Topics covered include personnel selection, training, motivation, job attitudes, and groups. Enrollment is limited to 10. Instructor(s): *Staff*

PSYC 432 BRAIN AND BEHAVIOR (3)**Brain and Behavior**

The neural basis of higher mental functions in humans such as perception, attention, memory, motor skill, and language will be examined. Claims and controversies from neuropsychology will be examined. Course not offered 2004–2005.

PSYC 440 ADV SEM:GENERAL PSYCHOLOGY (3)**Advanced Seminar in General Psychology**

Extensive reading and through discussion of empirically oriented issues drawn from various areas of psychology. Course not offered 2004–2005.

PSYC 441 HUMAN-COMPUTER INTERACTION (3)**Human-Computer Interaction**

Study of the design and evaluation of interactive computing systems for human use and the major phenomena surrounding them. Enrollment is limited to 12. Course not offered 2004–2005.

PSYC 442 COMPUTER APPLICATIONS (3)**Computer Applications**

Use of small computers in psychological research. Course not offered 2004–2005.

(F) = Fall; (S) = Spring

PSYC 460 PSYCHOLOGY OF EMOTN & MOTVATN (3)**Psychology of Emotion and Motivation**

Study of motives and emotions as causes of human behavior. Includes biological motives, aggression, emotions and emotional expression, and individual differences in motivation. Emotion and Motivation. Enrollment limited to 30. Course not offered 2004–2005.

PSYC 465 OLFACTORY PERCEPTION (3)**Olfactory Perception**

This seminar course provides overview of theories of olfaction, methods to assess olfactory performance, and the structure and function of the olfactory system. Specific topics include olfactory memory, sensory integration, the effect of emotion and cognition on olfactory perception, and olfaction as a channel of communication. Prerequisite(s): Permission of the instructor. Instructor(s): *Chen*

PSYC 470 ENGINEERING PSYCHOLOGY (3)**Engineering Psychology**

Principles of psychology and human performance applied to the design of modern systems. Course not offered 2004–2005.

PSYC 480 ADVANCED TOPICS (3)**DEVELOPMENTAL COGNITIVE NEUROSCIENCES**

Advanced topics in Psychology. Section 1 is titled "Developmental Cognitive Neurosciences,"; Section 2 is titled "TOPICS IN CLINICAL PSYCHOLOGY." Instructor(s): *Burgund, Diddel*

PSYC 485 SUPERVISED RESEARCH (HOURS VARIABLE)**Supervised Research**

Supervised empirical research. Open only to psychology majors. Research paper required. Instructor(s): *Staff*.

PSYC 488 SUPERVISED READING (HOURS VARIABLE)**Supervised Reading**

Supervised reading of books and empirical papers on a topic of mutual interest to students and faculty. Open only to psychology majors. Term paper required. Instructor(s): *Staff*

PSYC 490 UNDERGRADUATE RESEARCH (HOURS VARIABLE)**Undergraduate Research**

Intensive research experience for undergraduates. Prerequisite(s): Sponsorship by faculty member required. Instructor(s): *Staff*.

PSYC 495 SUMMER INTERNSHIP (3)**Summer Internship**

Permission of instructor required.

PSYC 499 HONORS THESIS (HOURS VARIABLE)**Honors Thesis**

Instructor(s): *Potts*

PSYC 502 ADV PSYCHOLOGICAL STATISTICS I (3)**Advanced Psychological Statistics I**

Introduction to inferential statistics with emphasis on analysis of variance and multiple regression. Also offered as STAT 509. Instructor(s): *Byrne*

PSYC 503 ADV PSYCHOLOGICAL STATISTICSII (3)**Advanced Psychological Statistics II**

A continuation of PSYC 502, focusing on multiple regression. Other multivariate techniques and distribution-free statistics are also covered. Instructor(s): *Lane*

PSYC 504 COMPUTER APPLICATIONS (3)**Computer Applications in Psychology**

The use of computers in psychological research and in usability engineering. The emphasis will be on dynamic HTML and JavaScript. Topics will include designing and running psychology experiments to run on the web and the use of web-based video. Also offered as PSYC 342. Enrollment limited to 10. Course not offered 2004–2005.

PSYC 507 RESEARCH METHODS (3)**Research Methods**

Graduate-level treatment of a wide range of laboratory and field research methodologies. Course not offered 2004–2005.

(*) = credit hours per semester

PSYC 511 HISTORY & SYSTEMS OF PSYC (3)**History and Systems of Psychology**

Study of the philosophical foundations of psychology, the development of scientific models in the 19th century, 20th-century schools of psychology, and the growth of fields of modern psychology. Offered in alternate years. Instructor(s): *Schneider*

PSYC 520 FOUNDATIONS OF COGNITIVE PSYC (3)**Foundations of Cognitive Psychology**

An introduction to the basic topics in cognitive psychology, including perception, memory, psycholinguistics, concept formation, problem solving, and decision making. Instructor(s): *Martin*

PSYC 521 PSYCHOLOGY OF PERCEPTION (3)**Psychology of Perception**

An overview of the sensory and cognitive processes involved in human vision and audition. Course not offered 2004-2005.

PSYC 522 INFORMATION PROCES'G&ATTENTION (3)**Information Processing and Attention**

The study of such problems as information overload, selective attention, response conflict, and automatic and controlled processing. Course not offered 2004-2005.

PSYC 524 MEMORY (3)**Memory**

Overview issues and research in remembering and forgetting. Not offered every year. Instructor(s): *Watkins*

PSYC 525 PSYCHOLINGUISTICS (3)**Psycholinguistics**

Study of the psychology of language. Includes the study of speech perception, reading, syntax, meaning, bilingualism, language and thought, and language errors and disorders. Course not offered 2004-2005.

PSYC 526 ARTIFICIAL INTELLIGENCE (3)**Artificial Intelligence**

The study of cognitive processes from the vantage point of the human as a computer, with an emphasis on expert systems and their development, parallel distributed processing models, and connectionism. Course not offered 2004-2005.

PSYC 527 THINKING (3)**Thinking**

The study of such higher mental processes such as forming concepts, solving problems, making decisions and reasoning. Course not offered 2004-2005.

PSYC 529 COGNITIVE RESEARCH SEMINAR (HOURS VARIABLE)**Cognitive Research Seminar**

A weekly student-staff seminar on current and recent research about mental phenomena. Course may be repeated for credit. Instructor(s): *Pomerantz*

PSYC 530 FOUNDATIONS OF I/O PSYCHOLOGY (3)**Foundations of I/O Psychology**

Graduate-level introduction to the study of human behavior in the work setting. Instructor(s): *Staff*

PSYC 533 I/O PSYCHOLOGY RESEARCH SEM (HOURS VARIABLE)**I/O Psychology Research Seminar**

Instructor(s): *Staff*

PSYC 540 FOUNDATIONS OF HUMAN FACTORS (3)**Foundations of Human Factors**

An introduction to the basic topics in engineering psychology including basic methods of systems analysis, display-control design, mental and physical workload analysis, and environmental factors in human performance. Instructor(s): *Byrne*

PSYC 541 HUMAN COMPUTER INTERACTION (3)**Human Computer Interaction**

Study of the design and evaluation of interactive computing systems for human use and the major phenomena surrounding them. Enrollment limited to 12. Course not offered 2004-2005.

PSYC 542 HUMAN RELIABILITY AND SAFETY (3)**Human Reliability and Safety**

Topics covered include human reliability in systems, accident analysis techniques, hazard and risk perception, and safety communications. Course not offered 2004-2005.

(F) = Fall; (S) = Spring

PSYC 543 COMP MODELING COGNITIVE PROCES (3)**Computational Modeling Cognitive Processes**

A survey of computational approaches to modeling cognitive processes. Recent production system models will be emphasized, but other approaches (e.g. connectionism) will also be covered. The course will involve general model evaluation and hands-on modeling experience. Course not offered 2004–2005.

PSYC 550 FOUNDATIONS OF SOCIAL PSYC (3)**Foundations of Social Psychology**

Review of theories of social psychology with an emphasis on current empirical research. Instructor(s): *Schneider*

PSYC 555 SECOND YEAR GRADUATE RESEARCH (3)**Second Year Graduate Research****PSYC 560 PSYCHOLOGY PRESENTATIONS (3)****Psychology Presentations**

Practicum on oral psychology presentation. May be repeated for credit. Course not offered every year. Instructor(s): *Watkins*.

PSYC 561 TEACHING IN PSYCHOLOGY (HOURS VARIABLE)**Teaching in Psychology**

Assistance in the teaching of undergraduate and occasionally graduate courses in psychology. Instructor(s): *Staff*

PSYC 563 INTERNSHIP (HOURS VARIABLE)**Internship**

Instructor(s): *Lane*

PSYC 565 HUMAN OLFACTION (3)**Human Olfaction**

Overviews theories of olfaction, structure and function of the olfactory system & methods to assess olfaction. Includes special topics such as olfactory memory, sensory integration, the effect of emotion and cognition olfaction, and olfaction as a channel of communication. Prerequisite(s): PSYC 101 Instructor(s): *Chen*

PSYC 571 FIRST YEAR PROJECT (HOURS VARIABLE)**First Year Project**

Individual research project undertaken in the first year of the graduate program. Instructor(s): *Lane*

PSYC 572 SECOND YEAR PROJECT (HOURS VARIABLE)**Second Year Project**

Individual research project undertaken during the second year of the graduate program. Instructor(s): *Lane*

PSYC 573 NONTHESIS GRADUATE RESEARCH (HOURS VARIABLE)**Nonthesis Graduate Research**

Individual research not for first- or second-year project or thesis. Instructor(s): *Lane*

PSYC 575 COGNITIVE NEUROSCIENCE I (3)**Cognitive Neuroscience I**

Overview of neuropsychological and cognitive neuroscience approaches to higher mental functions including sensation and perception, attention, motor control, and neuroplasticity. Other topics include basic neuroanatomy, experimental and clinical investigative methods and the historical and philosophical context of contemporary neuroscience. Also offered as NEUR 501. Enrollment limited to 15. Instructor(s): *Ro*

PSYC 576 COGNITIVE NEUROSCIENCE II (3)**Cognitive Neuroscience II**

Overview of neuropsychological and cognitive service approaches to higher mental functions including language, memory, executive functions, reasoning, and numerical processing. Also offered as NEUR 502. Course not offered 2004–2005.

PSYC 577 FUNCTIONAL NEUROANATOMY (2)**Introduction to Functional Neuroanatomy**

Anatomy and function of components of the nervous system with an emphasis on the central nervous system. Instructor(s): *Staff*

PSYC 580 DEVELOPMENTAL COGNITIVE NEUROS (3)**Developmental Cognitive Neuroscience**

Seminar focusing on the neural/biological bases of both normal and abnormal human development through a survey of recent research in developmental cognitive neuroscience. Topics include perceptual, motive, cognitive, and language development as well as experimental research methods for studying the developing brain. Prerequisite(s): Permission of the instructor. Instructor(s): *Burgund*

(*) = credit hours per semester

PSYC 581 VISION SCIENCE (3)**Vision Science**

Advanced graduate seminar in the psychology of vision covering the neural, psychophysical, and phenomenological approaches to visual perception. Course not offered 2004–2005.

PSYC 582 EARLY SENSORY, PERCEPT, ATT DEV (3)**Early Sensory, Perceptual, and Attentional Development**

This is a survey course for graduate students interested in the development of sensory systems, perception, and attention. There will be original empirical and theoretical readings from the literature on the development of these functions primarily during infancy. Neurobiological underpinnings for these functions will be debated and discussed. Enrollment is limited to 12. Instructor(s): *Dannemiller*

PSYC 602 PSYCHOMETRICS (3)**Psychometrics**

Test theory including reliability, validity, norms, sampling, and factor analysis. Offered in alternate years. Instructor(s): *Beal*

PSYC 610 ADVANCED RESEARCH SEMINAR (1)**Advanced Research Seminar**

Weekly lunchtime talk by department graduate students and faculty. Course not offered 2004–2005.

PSYC 620 ADVANCED TOPICS (3)**Advanced Topics in Cognitive Psychology: The Cognitive Neuroscience of Consciousness**

Topics vary year to year. Instructor(s): *Ro, Potts*

PSYC 621 TOPICS IN MEMORY (3)**Topics in Memory**

Course not offered 2004–2005.

PSYC 628 MEMORY RESEARCH SEMINAR (1)**Memory Research Seminar**

Weekly seminar to discuss recent research in human memory. Instructor(s): *Watkins*

PSYC 629 PSYCHOLINGUISTICS (1)**Psycholinguistics Research Seminar**

Weekly seminar to discuss recent research in psycholinguistics. Instructor(s): *Martin*

PSYC 630 ADVANCED TOPICS IN I/O (3)**Advanced Topics in I/O**

Instructor(s): *Beier*

PSYC 632 LEADERSHIP (3)**Leadership**

Examination of the major psychological approaches to the study of leadership. Emphasis is on theory and practice in formal organizations. Offered every three years. Course not offered 2004–2005.

PSYC 639 I/O PSYCHOLOGY INTERNSHIP (HOURS VARIABLE)**I/O Psychology Internship**

Supervised internship in organizational and/or personnel psychology. Instructor(s): *Staff*

PSYC 640 HUMAN-COMPUTER INTERACTION (3)**Topics in Engineering Psychology: Methods in Human-Computer Interaction**

Instructor(s): *Lane, Byrne*

PSYC 649 ENGINEERING PSYC INTERNSHIP (HOURS VARIABLE)**Engineering Psychology Internship**

Supervised internship in engineering psychology. Instructor(s): *Byrne*

PSYC 651 STEREOTYPING & PREJUDICE (3)**Topics in Social Psychology: Stereotyping and Prejudice**

Course not offered 2004–2005.

PSYC 660 PROFESSIONAL ISSUES (3)**Professional Issues**

Discussion of selected topics on professional matters. Includes grant writing, licensing, and ethics in psychology. Course not offered 2004–2005.

(F) = Fall; (S) = Spring

PSYC 671 COGNITIVE NEUROSCIENCE (3)**Cognitive Neuroscience**

Explores issues in functional neuroimaging and provides hands-on experience with experimental design, data acquisition, and analysis. Examines hemodynamic (PET, fMRI), electrophysiologic (EEG, MEG), and other (e.g. neural stimulation, event-related optical) methods of measuring functional activation in the human brain related to cognitive operations. Also offered as NEUR 501. Course not offered 2004–2005.

PSYC 700 THESIS RESEARCH (HOURS VARIABLE)**Thesis Research**

Research for the master's thesis. Instructor(s): *Lane*

PSYC 800 DISSERTATION RESEARCH (HOURS VARIABLE)**Dissertation Research**

Research for the doctoral dissertation. Instructor(s): *Lane*

RELI (RELIGIOUS STUDIES)**School of Humanities/Religious Studies****RELI 101 INTRO TO THE STUDY OF RELIGION (3)****Introduction to the Study of Religion**

Comparative and interdisciplinary analysis of key elements (including scripture, religious experience, ideas of the divine, religious art and practices) of two Western and two non-Western religions, of the scholarly study of religion, and of the role of religion in the contemporary world. Instructor(s): *Carroll, Parsons*

RELI 111 INTRO AFRICAN RELIGIONS (3)**Introduction to African Religions**

Introduction to the structures of African religions through readings. Topics include community, cosmology, ritual, ethical values, magic, witchcraft, spirit possession, contribution to nationalism, social change, religion and art, and transplantation of African Religions in the Americas. Not offered in 2004–2005. Instructor(s): *Bongmba*

RELI 113 INTRO TO CHRISTIANITY AFRICA (3)**Introduction to Christianity in Africa**

An introductory reading course examining the dynamics of African Christianity from the early church to the present. Course will include studying the African church during the Patristic era, the Colonial period, Prophetic Movements, nationalism, racial tensions, the role of women, and the emergence of a distinct theological voice. Not offered in 2004–2005. Instructor(s): *Bongmba*

RELI 122 THE BIBLE AND ITS INTERPRETERS (3)**The Bible and Its Interpreters**

An introduction to the Hebrew Bible/Old Testament. Compares modern-critical reading with early Jewish and Christian, often fanciful interpretations. Instructor(s): *Henze*

RELI 123 GOD, TIME, AND HISTORY (3)**God, Time, and History**

How is the passage of time given meaning, and what role—if any—is assigned to divinity in shaping the direction of events? Course explores various forms of recording and interpreting events, drawing from ancient Mesopotamia, Israel, and the Greco-Roman world—the cultures in which modern ideas of history began. Also offered as HIST 113 and HUMA 113. Not offered in 2004–2005. Instructor(s): *Henze*

RELI 125 INTRO TO BIBLICAL HEBREW I (3)**Introduction to Biblical Hebrew I**

An introduction to Biblical Hebrew (two semesters) with emphasis on grammar and vocabulary. Also offered as HEBR 125. Not offered in 2004–2005. Instructor(s): *Henze*

RELI 126 INTRO BIBLICAL HEBREW II (3)**Introduction to Biblical Hebrew II**

Continuation of RELI 125. We will finish the grammar in the second half of this semester and then read selections from the Hebrew Bible. Also offered as HEBR 126. Not offered in 2004–2005. Instructor(s): *Henze*

RELI 127 INTERM BIBLICAL HEBREW I (3)**Intermediate Biblical Hebrew I**

Readings in the Hebrew Bible as well as in some unvocalized texts from the Dead Sea Scrolls. Review of grammar and vocabulary. Completion of RELI 125 and 126 or some knowledge of Hebrew but lack a thorough philological training. Not offered in 2004–2005. Instructor(s): *Henze*

(#) = credit hours per semester

RELI 128 INTERM BIBLICAL HEBR II (3)**Intermediate Biblical Hebrew II**

Continuation of RELI 127 (RELI 127 is not a prerequisite). Also offered as HEBR 128. Not offered in 2004-2005. Instructor(s): *Staff*.

RELI 132 TIBETAN LANGUAGE AND CULTURE I (4)**Tibetan Language and Culture I**

Readings in Tibetan Bon and Buddhist religious texts. Offered with additional work as RELI 532. Not offered in 2004-2005. Instructor(s): *Klein, Gray*

RELI 133 TIBETAN LANGUAGE & CULTURE II (3)**Tibetan Language and Culture II**

Continuation of first semester. Knowledge of Tibetan alphabet & pronunciation. Offered with additional work as RELI 533. Permission of instructor required. Not offered in 2004-2005. Instructor(s): *Klein, Gray*

RELI 139 INTRO INDIAN RELIGIONS (3)**Introduction to Indian Religions**

This course will survey the four major religions which originated in India, namely Hinduism, Buddhism, Jainism, and Sikhism. Emphasis will be placed on the study of scriptures of these traditions. Also offered as ASIA 139. Enrollment is limited to 30. Instructor(s): *Gray*

RELI 140 INTRO CHINESE RELIGIONS (3)**Introduction to Chinese Religions**

Surveys the major Chinese religious traditions of Confucianism, Daoism and Buddhism. Readings will include both philosophical texts, historical and anthropological studies, as well as popular literature. Also offered as ASIA 140. Not offered in 2004-2005. Instructor(s): *Gray*

RELI 141 INTRODUCTION TO ISLAM (3)**Introduction to Islam**

A historical survey of the Muslim religious tradition, from the time of the Prophet Muhammad until the present day. Focus on development of Sunni and Shiite Islam, Sufism, and modern Islam. Not offered in 2004-2005. Instructor(s): *Cook*

RELI 158 LIBERATION THEOLOGIES (3)**Liberation Theologies**

This course seeks to acquaint students with examples of liberation theology, as they relate to the following issues: racism, sexism, classism, and environmental destruction. Attention is given to the context, construction, form, and aims of Latin American liberation theology; Black theology; Feminist theology; and Theology in the Intersections. Offered with additional work as RELI 548. Enrollment limited to 25. Instructor(s): *Pinn*

RELI 200 THE BIBLE IN WESTERN TRADITION (3)**The Bible in Western Tradition**

Explores multiple roles the Bible has played in Western culture. Emphasis will be on the Bible in media history, as generator of the artistic imagination and as catalyst of ideas and as shaper of religious and political history. Also offered as HUMA 107. Not offered in 2004-2005. Instructor(s): *Kelber*

RELI 207 WHO IS (NOT) A JEW? (3)**Who Is (Not) a Jew?**

Explore problems with identity--ethnic, political, spiritual --in the case of the other Jew. Consider themes of antisemitism and philo-semitism, insider and outside, tradition and innovation. Examine competing views purveyed through diverse media such as literature, film, art, and music. Selected texts from St. Paul, Shakespeare, Dickens, Marx, George Eliot, Freud, Chagall, Cynthia Ozick, Bob Dylan, and Woody Allen. Enrollment limited to 25. Instructor(s): *Kaplan*.

RELI 209 INTRODUCTION TO JUDAISM (3)**Introduction to Judaism**

Post-biblical Judaism reflected in ancient rabbinical (legal space and non-legal) literature, feminism, medieval Jewish philosophy with special emphasis on Maimonides, and modern developments such as Hasidism, Musar, liberal Judaism, and Zionism. Not offered in 2004-2005. Instructor(s): *Kaplan*

RELI 210 ETHICS IN JUDAISM (3)**Ethics in Judaism**

What-if anything-is right, good, and just about our intentions and actions? The course surveys urgent questions raised in Jewish philosophy concerning law, morality, and politics. Topics include freedom and frailty, gender and government, emotions and reasons, suffering and hope. Readings in translation ancient, medieval, modern, and contemporary writings. Instructor(s): *Kaplan*

(F) = Fall; (S) = Spring

RELI 221 LIFE PROPHET MUHAMMAD (3)**The Life of the Prophet Muhammad**

This course will examine the life of the Prophet Muhammad, focusing on its significance for Muslims and for non-Muslims. Readings in The Qur'an, Ibn Hisham, and Haykal. Also offered as ASIA 221. Not offered in 2004-2005. Instructor(s): *Cook*

RELI 223 QUR'AN AND COMMENTARY (3)**Qur'an and Commentary**

Survey of the major themes of the Qur'an and selected types of commentary on it from the early Islamic period until the present day. Instructor(s): *Cook*

RELI 225 REVOLUTIONARY ISLAM: SHI'ISM (3)**Revolutionary Islam: Shi'ism**

This course will cover Shi'ism at an introductory level, focusing upon the Imami (Twelve) and Ismai'ili branches of Shi'ism but also including the so-called Ghulat sects. Not offered in 2004-2005. Instructor(s): *Cook*

RELI 231 THE ENLIGHTENMENT OF THE BODY (3)**The Enlightenment of the Body**

Beginning with a historical survey of the American metaphysical tradition, this course turns to a close study of the Esalen Institute in Big Sur, California, as a unique window into some of the different ways the tradition has appropriated Asian religions, psychological models of the unconscious, and contemporary scientific paradigms. Also offered as ASIA 231. Not offered in 2004-2005. Instructor(s): *Kripal*

RELI 232 RELIGIONS OF INDIA (3)**Religions of India**

This course will survey the religions of India, namely Hinduism, Buddhism, Jainism, Christianity, Islam, and Sikhism. Emphasis will be placed on the study of scriptures of these traditions and their continuing global relevance, particularly in American history and culture. Also offered as ASIA 232 and RELI 500 with additional work. Not offered in 2004-2005. Instructor(s): *Kripal*

RELI 234 INTRO TO INDIAN PHILOSOPHY (3)**Introduction to Indian Philosophy**

This course will survey the major schools of Indian philosophy, beginning with the ancient period of Vedic speculation, the formation of the distinct schools during the classical period, and their medieval developments. While the function will be primarily on Hindu and Buddhist schools, Jain philosophy will also be covered. Offered as ASIA 234 or with additional work as RELI 504. Instructor(s): *Gray*

RELI 235 INTRODUCTION TO TAOISM (3)**Introduction to Taoism**

Beginning with a survey of religious trends in ancient China, we will explore the development of the Taoist philosophy. We will then focus on religious Taoism, particularly the mystical and alchemical traditions. We will conclude by examining the fate of Taoism in post-Mao China and its international legacy. Also offered as ASIA 235 Instructor(s): *Gray*

RELI 240 BLACK RELIGIOUS THOUGHT (3)**Black Religious Thought**

This course will examine 20th century Black religious thought and its influence on Black life and praxis. The course is structured thematically. The themes are: Black Nationalism, Christianity Inspired Praxis, Black Existentialism and Humanism. We will explore central themes such as evil, suffering, scriptural imagery, and liberation. Offered with additional work as RELI 550. Enrollment limited to 15. Instructor(s): *Pinn*

RELI 243 THE BOOK OF GENESIS (3)**The Book of Genesis**

A critical reading in English of the Book of Genesis with close attention to the narrative artistry and theological dimensions of the text. Compares pre-modern modes of interpretation and modern historical criticism. Instructor(s): *Henze*

RELI 247 BLACK THEOLOGY: 1969 - PRESENT (3)**Religion and Revolution: Black Theology from 1969 to Present**

Beginning in the 1960s, Black theology combined the best of the Christian Tradition and the energy of Black Power. And, giving religious importance to "Black is beautiful," Black theology changed theological discourse. Through readings and group discussions, students will explore the history, sources, and define elements of Black theology. Enrollment limited to 15. Instructor(s): *Pinn*

RELI 250 MEDITATION, MYSTICISM & MAGIC (3)**Meditation, Mysticism, and Magic**

The course moves between Buddhist religious and Western psychological literature, analyzing these as models of human development, as guides to a meditative life or critiques of it, and above all as expressions of deeply rooted cultural proclivities. Reading Freud, Milarepa, Norbu, Obeyesekere, Sutric and Tantric literature, Taylor and Wangyal. Also offered as ASIA 250. Not offered in 2004-2005. Instructor(s): *Klein, Parsons*

(#) = credit hours per semester

RELI 260 RELIGION & THE SOCIAL SCIENCES (3)**Religion and the Social Sciences**

Designed to introduce the student to classic and contemporary texts in the social scientific study of religion. Topics include: mysticism, the social construction of gender, the guru-disciple relationship, secularization, healing traditions East and West, cross-cultural debates. Enrollment is limited to 25. Not offered in 2004-2005. Instructor(s): *Parsons*

RELI 262 INTRODUCTION TO MYSTICISM (3)**Introduction to Mysticism**

Familiarize the student with diverse texts (secular and religious, East and West) found in mystical literature. Emphasis will be placed on psychological, philosophical and comparative methods. Offered with additional work as RELI 582. Enrollment limited to 25 Instructor(s): *Parsons*

RELI 270 INTRO BLACK CHURCH IN THE US (3)**Introduction to the Black Church in the United States**

Much of what has historically taken place within Black communities has been shaped by Black Christian churches. These churches are resources for those interested in understanding religious expression and activism within the Black community. This course provides an introduction into the history, thought, and worship of the major Black denominations. Offered with additional work as RELI 542. Not offered in 2004-2005. Instructor(s): *Pinn*

RELI 280 GOD IN POSTMDRN WORLD (3)**God in the Postmodern World**

Explore forms of theistic religious experience, concentrating on the Western Christian tradition; past and present cultural and philosophical challenges to traditional religious belief; the possibility of Christian faith and the struggle for justice and meaning. Not offered in 2004-2005. Instructor(s): *Stroup*

RELI 282 INTRO TO CHRISTIANITY (3)**Introduction to Christianity**

Multidisciplinary exploration of Christian religious experience, belief, and social reality with examples from Africa, the Americas, Asia, and Europe during the last two thousand years. Themes include search for lasting marks of identity amid change and diversity as well as the issue of Christianity's relation to processes of modernization and secularization. No prior background in religious studies required. Instructor(s): *Bongmba*

RELI 286 THE REFORMATION & ITS RESULTS (3)**The Reformation and Its Results**

Theology and church-state issues from 16th-century Reformation to 17th century; medieval background; Luther and Calvin, the Catholic Reformation; religious wars; Protestant orthodoxy; Pietist spirituality; Puritanism; and calls for toleration. Also offered as HIST 286. Instructor(s): *Stroup*.

RELI 293 PHILOSOPHERS LOOK AT RELIGION (3)**Philosophers Look at Religion**

Inquiry into the ways which selected Western and Asian philosophers have interpreted God, reality, the moral life and religious experience. Plato, Augustine, Hume and Kant will be compared with thinkers of the Vedic, Jain, Samkhya and Buddhist traditions. Also offered as HUMA 115. Not offered in 2004-2005. Instructor(s): *Staff*.

RELI 294 RELIGION IN FICTION AND FILM (3)**Religion in Fiction and Film**

The sacred in interreligious, international, and interdisciplinary encounter, approached via social sciences, theology, theories of literature and mythology. Authors and directors can include Waugh, Mishima, Mann, Mann, Proust, Hesse, Percy, Gardner, Updike, Gibson, Sterling, Coupland, Ray, Resnais, Fellini, Bergman, Anderson, Bunnell, and Nutley. Offered with additional work as RELI 514. Not offered in 2004-2005. Instructor(s): *Stroup*

RELI 301 NIETZSCHE & RELIGIOUS THOUGHT (3)**Nietzsche and Religious Thought**

Nietzsche's thought and background: his impact on religious thinkers and cultural critics; his influence on understanding of God, faith, values, society; his connection with Schopenhauer, Wagner, Tillich, Mann, Barth, Buber, Freud, Jung, D.H. Lawrence, Heidegger, antibourgeois cultural criticism, environmentalism, feminism, and postmodernism. Also offered as RELI 515 with additional work. Instructor(s): *Stroup*.

RELI 308 GOSPEL AND TRADITION (3)**Gospel and Tradition**

An examination of the Synoptic Problem--one of the major unresolved issues in the study of ancient, Western textual traditions! Exploration of orality, narrativity and memorial arbitration exposes the inadequacies of the present historical model, and suggests a reconceptualization of the issue of the genesis of the Christian foundation stories. Also offered as RELI 506 with additional work. Not offered in 2004-2005. Instructor(s): *Kelber*

(F) = Fall; (S) = Spring

RELI 309 SYNOPTIC GOSPELS (3)**Canonical Gospels: Narrative and Social Setting**

Exploration of the narrative patterns and plot constructions of the synoptic gospels (Mark, Matthew, Luke), and exploration of the historical circumstances that give rise to each gospel composition. Enrollment limited to 40.

Instructor(s): *Kelber*

RELI 312 MLK AND MALCOLM X (3)**The Religious Thought of Martin L. King, Jr. and Malcolm X**

Although many figures played a prominent role during the Civil Rights Movement, Martin L. King, Jr. and Malcolm X made unique contributions. Their work sparked important conversation concerning the methods, goals, and consequences of struggle toward liberation. This course examines their religiosity, theological sensibilities, and the major themes which surface in their writings and public work. Offered with additional work as RELI 546. Not offered in 2004-2005. Instructor(s): *Pinn*

RELI 316 INVENTION OF PAGANISM IN ROMAN (3)**The Invention of Paganism in the Roman Empire**

This interdisciplinary course examines the development of the concept of paganism during the Roman Empire, during the first through seventh centuries A.D. We will examine the mutually tolerant character of the many religions of the Roman world and see how the category of paganism was invented and applied by Christians to all the polytheists of the empire and beyond. Also offered as HIST 316 and CLAS 318. Not offered in 2004-2005.

Instructor(s): *Maas, McGill*

RELI 322 INTRODUCTION TO BUDDHISM (3)**Introduction to Buddhism**

Exploration of the Buddhist traditions of India, Tibet, China, and Japan, emphasizing the relationship between styles of meditation, their philosophical perspectives, cultural context, and classic Buddhist texts. Offered with additional work as RELI 572. Not offered in 2004-2005. Instructor(s): *Klein*

RELI 323 BUDDHISM, GENDER & SOCIETY (3)**The Knowing Body: Buddhism, Gender and the Social World**

Western thought tends to regard mind and body dualistically, a view with significant impact on religious cultural, gendered and social processes. This course juxtaposes received Western assumptions with Buddhist perspectives (especially Tibetan Buddhist), mapping Western and Buddhist categories onto each other to better understand the implications of each. Offered with additional work as RELI 577. Also offered as SOCI 323, WGST 323, and ASIA 323. Not offered in 2004-2005. Instructor(s): *Klein, Long*

RELI 331 ADV. TIBETAN LANG & CULTURE I (3)**Advanced Tibetan Language and Culture I**

Building upon the foundation of RELI 132 & 133, this course further develops language skills through reading and engagement with a wider range of Tibetan religious and historical literature. This course also explores the history and special features of Tibetan cultures, and encourages conversational ability in modern Tibetan. Also offered as TIBT 324. Not offered in 2004-2005. Instructor(s): *Gray, Klein*

RELI 332 ADV. TIBETAN LANG & CULTURE II (HOURS VARIABLE)**Advanced Tibetan Language and Culture II**

Continuation of RELI 331. This course further develops language skills and cultural understanding through reading and engagement with a wide range of Tibetan religious and historical literature. It also explores the history and special features of Tibetan cultures and encourages conversational ability in modern Tibetan. Also offered as TIBT 332. Prerequisite(s): RELI 133 or 331. Not offered in 2004-2005. Instructor(s): *Gray*

RELI 334 PSYCHOLOGY OF RELIGION (3)**Psychology of Religion**

An overview of the basic approaches in the psychological understanding of religious belief and practice. Topics to be addressed in religious systems East and West include: sex, religious experience, ritual, myth, saintliness, guilt, God and meditation. Not offered in 2004-2005. Instructor(s): *Parsons*

RELI 338 THE CHURCH OF AFRICA (3)**The Church of Africa**

A reading course designed to examine Christianity in Africa. Course materials and readings will address the development of the church from the Patristic era to the present, paying attention to theological developments, missionization, colonialism, nationalism, prophetic movements, race relations, the role of women, and social issues. Offered with additional work as RELI 540. Enrollment is limited to 65. Not offered in 2004-2005. Instructor(s): *Bongmba*

RELI 340 THEOLOGY IN AFRICA (3)**Theology in Africa**

Introductory readings to theological thinking in Africa from the Patristic period to the present. Course will address methodological issues as well as constructive theological work on enculturation and liberation. Not offered in 2004-2005. Instructor(s): *Bongmba*

(*) = credit hours per semester

RELI 342 NEW RELIG MOVEMENTS IN AFRICA (3)**New Religious Movements in Africa**

Discusses new religious movements and the religious, sociological, and political factors leading to their rise, also missionary and colonial reactions to them. Examines their relationship to indigenous religions, political praxis, their focus on this-worldly salvation in the wake of political and economic marginality. Also offered as ANTH 343.

Instructor(s): *Bongmba*

RELI 348 CHRISTIANITY & ISLAM IN AFRICA (3)**Christianity and Islam in Africa**

This course will focus upon the history and conflict of Christianity and Islam in Africa, with emphasis placed upon indigenous African developments, cultural and artistic themes, and conversion narratives as well as exploring the co-existence and conflict of the two major faiths of the continent. Offered with additional work as RELI 536. Not offered in 2004-2005. Instructor(s): *Bongmba, Cook*

RELI 350 SCRIPTURES IN MONOTHEIST FAITH (3)**Sacred Scriptures in Monotheistic Faiths**

This course will examine the approaches to Sacred Scriptures (the Hebrew Bible, the New Testament and the Qur'an) in Judaism, Christianity, and Islam. We will discuss themes of holy language and translation, authority, written and oral traditions, prophecy and scriptural commentary. Not offered in 2004-2005. Instructor(s): *Cook, Kaplan, Kelber*

RELI 352 JIHAD & THE END OF THE WORLD (3)**Jihad and the End of the World**

The course will explore the connections between Jihad (both aggressive and non-aggressive) and apocalyptic beliefs in the Muslim tradition from the time of the Prophet Muhammad until the present day. Readings from the Qur'an, Bukhari, Ayatullah al-Khumayni, and Sayyid Qutb. Instructor(s): *Cook*

RELI 354 ASIAN APOCALYPTIC MOVEMENTS (3)**Asian Apocalyptic Movements**

This course will focus upon the rich and neglected apocalyptic and millenarian tradition of Asia, discussing Hinduism, Buddhism, Zoroastrianism, Manichaeism and Eastern Christianity as each of these faiths interact with and react to each other. Readings will be from scriptures and translations covering approximately the period between the first and nineteenth centuries. Also offered as ASIA 354. Not offered in 2004-2005. Instructor(s): *Cook*

RELI 355 REL & SOCIAL CHANGE S. ASIA (3)**Religion and Social Change in South Asia**

The course will explore connections between religion and social and historical change in Colonial and Post-Colonial South Asia, with a focus on Hindu, Buddhist and Shia Muslim communities in India, Sri Lanka and Nepal. Particular attention will be given to issues of religious identity and inter-religious conflict. Also offered as ASIA 355. Not offered in 2004-2005. Instructor(s): *Cook*

RELI 356 MAJ ISSUES CONTEMPORARY ISLAM (3)**Major Issues in Contemporary Islam**

This course will focus on the major issues confronting contemporary Islam including Islamic unity, the place of the Qur'an and traditions, human rights, Islamic feminism, da'wa, education, science and Islam, globalization and medical ethics. Not offered in 2004-2005. Instructor(s): *Cook*

RELI 361 THE ORIENTAL RENAISSANCE (3)**The Oriental Renaissance**

This course will explore the European and American encounters with India from 17th-century France to 20th-century America. Particular attention will be given to the translation of texts, the English and German Roman traditions, the depth psychology of C.G. Jung, and the American New Age. Also offered as ASIA 361. Not offered in 2004-2005. Instructor(s): *Kripal*

RELI 363 MARRIAGE OF HEAVEN & HELL (3)**The Marriage of Heaven and Hell**

The history of mysticism is marked by symbolic systems and ritual practices suffused with erotic and ethical paradoxes. This course examines such themes in a wide variety of historical contexts, from Plato's dialogues and Blake's poetry to Christian mysticism, Hindu, and Buddhist Tantric traditions, and the modern study of religion. Also offered as ASIA 363. Not offered in 2004-2005. Instructor(s): *Kripal*

RELI 365 CHINESE MYSTICISM & MEDITATION (3)**Chinese Mysticism and Meditation**

The course will investigate the major mystical and meditative traditions in Taoism, Buddhism, and Neo-Confucianism. Focus will be placed upon the inner and outer traditions of Taoist alchemy, Buddhist meditation traditions (primarily Chan/Zen and Pure Land techniques), and the influence of these traditions upon Chinese intellectual discourse and the creative arts. Also offered as ASIA 365. Not offered in 2004-2005. Instructor(s): *Gray*

(F) = Fall; (S) = Spring

RELI 371 MODERN JEWISH THOUGHT (3)**Modern Jewish Thought**

What is the role of God and spirituality in the modern world? How do modern Jewish thinkers reinterpret traditional religious concepts? Explore debates on textual criticism, historical representation, existentialism, and political theology in writings by Spinoza, Buber, Rosenzweig, Kook, Levinas, and Adler. Offered with additional work as RELI 561. Instructor(s): *Kaplan*.

RELI 383 THE DEAD SEA SCROLLS (3)**The Dead Sea Scrolls**

A survey of the Dead Sea Scrolls as a window into the Second Temple period. A close reading of the scrolls will lead to a discussion of the theological and historical issues of the time, a period pivotal for the formation of Rabbinic Judaism and Early Christianity. Instructor(s): *Henze*

RELI 391 DEATH AND DYING (3)**Death and Dying in Religion and Literature**

Death, immortality, resurrection, grief and mourning in selected texts and films of Western and Asian religious traditions, and modern and postmodern literature. Readings from the Bible, Plato, Augustine, Pascal, St. Theresa of Avila, the Upanishads, selected Buddhist texts and the works of Tolstoy, Rilke, Kafka, and Celan, and selected science fiction. Offered with additional work as RELI 591. Not offered in 2004–2005. Instructor(s): *Staff*.

RELI 395 REL, ASCETICISM & THE BODY (3)**Religion, Asceticism, and the Body**

Explores interpretations of the body in selected religious traditions in the context of contemporary analyses of corporeality. Includes the theological meanings of pain, suffering, self-denial and renunciation of the world. Offered with additional work as RELI 596. Not offered in 2004–2005. Instructor(s): *Staff*.

RELI 397 EGOISM, ALTRUISM, & RELIGION (3)**Egoism, Altruism, and Religion**

Consider origins and contemporary manifestations of self-love and other-regarding love from biological, philosophical, psychological and social perspectives. Relation of religious beliefs and practices to empathy, sympathy and formation of the self. Offered with additional work as RELI 599. Not offered in 2004–2005. Instructor(s): *Staff*.

RELI 401 INDEPENDENT STUDY (HOURS VARIABLE)**Independent Study**

Instructor(s): *Staff*.

RELI 402 INDEPENDENT STUDY (HOURS VARIABLE)**Independent Study**

Instructor(s): *Staff*.

RELI 403 READINGS IN SANSKRIT TEXTS (3)**Readings in Sanskrit Texts**

This course will involve intensive reading of classical Sanskrit texts, in order to develop mastery of the language, building from the foundation of first year Sanskrit. We will read texts from several genres of literature, such as the epics, story collections, and sutras. Prerequisite(s): SANS 302 Instructor(s): *Gray*

RELI 410 APOCALYPSE THEN AND NOW (3)**Apocalypse Then and Now**

A close reading and discussion of three apocalypses from the biblical period: 1 Enoch, 2 Baruch, and Revelation. Concludes with a discussion of contemporary forms of apocalypticism. Offered with additional work as RELI 510. Instructor(s): *Henze*.

RELI 423 AFRICAN MYTHS & RITUALS (3)**African Myths and Rituals**

Explore and analyze specific myths and rituals which provide legitimation for community ceremonies and which serve as basis for the negotiation of power and ideology for members within that community. Readings from classic theorist: Gennep & Turner; and contemporary theorists: Werbner, Heusch, Comaroff and Ray. Also offered as ANTH 423. Not offered in 2004–2005. Instructor(s): *Bongmba*

RELI 424 REL & POLITICS IN AFRICA (3)**Religion and Politics in Africa**

Explores religion and politics in Africa focusing on indigenous religions, Christianity, Islam, etc. Readings highlight historical developments, key documents in religion and politics, contemporary issues such as: religious freedom, separation of religion and politics, human rights, violence, race, gender, class, and the role of religion in reconstruction of public praxis. Offered with additional work as RELI 534. Enrollment is limited to 30. Not offered in 2004–2005. Instructor(s): *Bongmba*

(*) = credit hours per semester

RELI 426 REL & LITERATURE AFRICA (3)**Religion and Literature in Africa**

Analysis of the religious imagination in selected African literary works that address Islam, Christianity, indigenous religions. Issues addressed include identity crises, religious themes such as cosmology, community, power, beliefs, and gender in a postcolonial/postmodern world. Instructor(s): *Bongmba*.

RELI 429 DEPARTMENT SEMINAR (3)**Department Seminar**

The team-taught Department Seminar critically examines the methodological questions and interpretive paradigms that have been central to the academic study of religion. Philosophical, ethical, textual, psychological, comparative and gender issues, among others, will be considered. Instructors and topics vary. Mandatory for graduate students; majors by invitation. Offered with additional work as RELI 529. Not offered in 2004-2005. Instructor(s): *Staff*

RELI 430 RELIGION & MODERN THERAPIES (3)**Religion and Modern Therapies**

A survey of the historical development of the psychology of religion and its conversation with theology, comparative studies, gender studies, sociology, and anthropology. Topics include: mysticism, eroticism, conversion, feminism, psychobiography. Examples drawn from a variety of religious traditions. Readings include: Freud, Jung, Tillich, Erikson, Kristeva, Kakar. Offered with additional work as RELI 584. Instructor(s): *Parsons*

RELI 440 SUFISM (3)**Islam's Mystical and Esoteric Tradition**

Explores the ascetic and Sufi aspects of Islam from the middle Islamic period until the present day. Readings from al-Ghazali, Ibn al-Arabi, Sa'di, Hafiz and Rumi. Instructor(s): *Cook*

RELI 441 POPULAR RELIGION MIDDLE EAST (3)**Popular Religion in the Middle East**

This course will examine the popular religion in the Middle East from Late Antiquity until the 19th century, focusing on healing practices, astrology, protection, amulets, seasoned/life-cycle rituals, and other popular beliefs common to Islam, Judaism and Christianity. Offered with additional work as RELI 525. Also offered as ASIA 441. Not offered in 2004-2005 Instructor(s): *Cook*

RELI 443 MAIMONIDES GUIDE PERPLEXED (3)**Maimonides "Guide for the Perplexed"**

This course will closely read the classic text of Judeo-Muslim thought, Maimonides Guide for the Perplexed, in its historical philosophical and literary context. It will draw upon additional Jewish and Muslim sources as well. Not offered in 2004-2005. Instructor(s): *Cook*

RELI 451 PHILO & THEOLOGIES OF HISTORY (3)**Philosophies and Theologies of History**

Modern thought on meaning, direction of history; roots in eschatology, Augustine; flowering in progress, historicism: Hegel, Ranke, Burckhardt, Nietzsche, Troeltsch, Spengler, Heidegger, Toynbee; cultural echo (de Chirico, Proust, Mann, Robbe-Grillet, Bunuel, Bergman, Fellini). Offered with additional work as Reli 517. Also offered as HIST 451. Instructor(s): *Stroup*

RELI 456 REFORMATION TO THE PRESENT (3)**History of Western Christianity: Reformation to the Present**

Spirituality, sociopolitical movements, and intellectual life in the West. Includes Luther, Calvin, Kierkegaard, Bonhoeffer, Barth, C.S. Lewis, Tillich, Marx, Nietzsche, and Jung. Offered with additional work as RELI 520. Not offered in 2004-2005. Instructor(s): *Stroup*

RELI 457 MODERNITY, ANTI & POST MODERN (3)**Modernity, Anti, and Postmodernity**

Modernity, Antimodernity, & Postmodernity as Styles of Religiosity. Exploration of the problem of defining "modernity" and concepts. Includes contemporary sociological, political, and cultural theory (e.g. Baudrillard) in connection with typologies of religious experience and grouping from mainline through New Age. Offered with additional work as RELI 519. Not offered in 2004-2005. Instructor(s): *Stroup*

RELI 462 MEDICAL ETHICS & AMER VALUES I (3)**Medical Ethics and American Values I**

Readings and discussion of the principles and priorities of medical ethics, with attention to historical development. Offered with additional work as RELI 543. Taught in conjunction with University of Texas-Houston Health Science Center. Classes meet at UT School of Public Health. Intended only for highly qualified undergraduates. Enrollment is limited to 15. Instructor(s): *Reiser*

(F) = Fall; (S) = Spring

RELI 463 MEDICAL ETHICS-AMER. VALUES II (4)**Medical Ethics-American Values II**

Continuation of 462 (prerequisite), with attention to clinical experience. Offered with additional work as RELI 544. Taught in conjunction with University of Texas-Houston Health Science Center. Classes meet at UT School of Public Health. Intended only for highly qualified undergraduates. Not offered in 2004-2005. Instructor(s): *Reiser*

RELI 468 GERMAN-JEWISH IDEALISM (3)**German-Jewish Idealism and Its Critics**

From the 18th century until 1933, writers imagined a symbiosis of Judaic and German philosophical and cultural ideas. Were they tragically deluded or guardedly optimistic? Discuss skepticism, romanticism, historicism, ethical monotheism, critical theory, and neo-conservatism. Readings selected from Mendelssohn, Spinoza, Cohen, Buber, Rosenzweig, Scholem, Benjamin, Arendt, and Strauss. Also offered with additional work as RELI 568. Not offered in 2004-2005. Instructor(s): *Kaplan*

RELI 470 BUDDHIST WISDOM TEXTS (3)**Buddhist Wisdom Texts**

Indo-Tibetan analyses of the mind and its functions, especially differing views on the role of reasoning and the nature of the "ultimate" in major philosophical schools of Tibet and India. Offered with additional credit as RELI 570 Instructor(s): *Klein*.

RELI 480 SEX, SANCTITY, PSYCHOANALYSIS (3)**Sexuality, Sanctity, and Psychoanalysis**

An advanced mapping of the psychoanalytic study of religion through a close reading of psychoanalytically informed studies of saints, founding figures, and charismatic teachers, with a particular focus on sexuality and gender and their relationship to the expression and representation of holiness in the history of religions. Offered with additional work as RELI 580. Also offered as WGST 470. Enrollment limited to 25. Instructor(s): *Kripal; Parsons*

RELI 500 RELIGIONS OF INDIA (3)**Religions of India**

Graduate version of ASIA 232 and RELI 232. Not offered in 2004-2005. Instructor(s): *Kripal*

RELI 501 THE ORIENTAL RENAISSANCE (3)**The Oriental Renaissance**

This course will explore the European and American encounters with India from 17th-century France to twentieth-century America. Particular attention will be given to the translation of Sanskrit texts, the English and German Romantic traditions, the depth psychology of C.G. Jung, and the American New Age. Graduate version of RELI 361 and ASIA 361. Not offered in 2004-2005. Instructor(s): *Kripal*

RELI 503 INTRODUCTION TO TAOISM (3)**Introduction to Taoism**

Graduate version of RELI 235. Instructor(s): *Gray*

RELI 504 INTRO TO INDIAN PHILOSOPHY (3)**Introduction to Indian Philosophy**

Graduate version of RELI 234 & Asia 234. Not offered in 2004-2005. Instructor(s): *Gray*

RELI 506 GOSPEL AND TRADITION (3)**Gospel and Tradition**

Graduate version of RELI 308. Not offered in 2004-2005. Instructor(s): *Kelber*

RELI 509 NEW TESTAMENT & HERMENEUTICS (3)**New Testament and Hermeneutics**

Models of Christian Origins: Modernity's perception of Early Christianity from the perspectives of methodology, hermeneutics, and philosophy of history. Not offered in 2004-2005. Instructor(s): *Kelber*

RELI 510 APOCALYPSE THEN AND NOW (3)**Apocalypse Then and Now**

Graduate version of RELI 410. Instructor(s): *Henze*.

RELI 514 RELIGION IN FICTION AND FILM (3)**Religion in Fiction and Film**

Graduate version of RELI 294. Not offered in 2004-2005. Instructor(s): *Stroup*

RELI 515 NIETZSCHE & RELIGIOUS THOUGHT (3)**Nietzsche and Religious Thought**

Graduate version of RELI 301 Instructor(s): *Stroup*.

(#) = credit hours per semester

RELI 517 PHIL & THEOLOGIES OF HISTORY (3)**Philosophies and Theologies of History**

Graduate version of RELI 451 and HIST 451. Not offered in 2004-2005. Instructor(s): *Stroup*

RELI 519 MODERN, ANTI & POSTMODERN (3)**Modernity, Antimodernity, and Postmodernity As Styles of Religiosity**

Graduate version of RELI 457. Not offered in 2004-2005. Instructor(s): *Stroup*

RELI 520 REFORMATION TO THE PRESENT (3)**History of Western Christianity: Reformation to the Present**

Graduate version of RELI 456. Instructor(s): *Stroup*

RELI 522 SUFISM (3)**Islam's Mystical and Esoteric Tradition**

Graduate version of RELI 440. Instructor(s): *Cook*

RELI 523 INDEPENDENT STUDY (HOURS VARIABLE)**Independent Study**

Instructor(s): *Staff*

RELI 524 INDEPENDENT STUDY (HOURS VARIABLE)**Independent Study**

Instructor(s): *Staff*

RELI 525 POPULAR RELIGION IN MID EAST (3)**Popular Religion in the Middle East**

Graduate version of RELI 441. Also offered as ASIA 441. Instructor(s): *Cook*

RELI 529 DEPARTMENT SEMINAR (3)**Department Seminar**

Graduate version of RELI 429. Instructor(s): *Staff*

RELI 530 READINGS IN SANSKRIT TEXTS (3)**Readings in Sanskrit Texts**

Graduate version of RELI 403. Prerequisite(s): SANS 302 Instructor(s): *Gray*

RELI 531 ADV. TIBETAN LANG & CULTURE I (3)**Advanced Tibetan Language and Culture**

Graduate version of RELI 331. Not offered in 2004-2005 Instructor(s): *Staff*

RELI 532 ADV LANGUAGE AND CULTURE II (3)**Advanced Tibetan Language and Culture II**

Graduate version of RELI 332 and TIBT 332. Not offered in 2004-2005. Instructor(s): *Staff*

RELI 533 TIBETAN LANGUAGE & CULTURE (3)**Tibetan Language and Culture**

Graduate version of RELI 133 and TIBT 133. Not offered in 2004-2005. Instructor(s): *Staff*

RELI 536 CHRISTIANITY & ISLAM IN AFRICA (3)**Christianity and Islam in Africa**

Graduate version of RELI 348. Not offered in 2004-2005. Instructor(s): *Bongmba, Cook*

RELI 537 AFRICAN MYTHS AND RITUALS (3)**African Myths and Rituals**

Graduate version of RELI 423. Instructor(s): *Bongmba*

RELI 538 REL & LITERATURE IN AFRICA (3)**Religion and Literature in Africa**

Graduate version of RELI 426. Not offered in 2004-2005 Instructor(s): *Bongmba*

RELI 540 THE CHURCH OF AFRICA (3)**The Church of Africa**

Graduate version of RELI 338. Not offered in 2004-2005. Instructor(s): *Bongmba*

RELI 543 MEDICAL ETHICS & AMER VALUES I (3)**Medical Ethics and American Values I**

Graduate version of RELI 462. Taught in conjunction with University of Texas-Houston Health Science Center. Classes meet at UT School of Public Health. Limited to 15. Instructor(s): *Reiser*

(F) = Fall; (S) = Spring

RELI 544 MED ETHICS & AMER VALUES II (4)**Medical Ethics and American Values II**

Graduate version of RELI 463. Taught in conjunction with University of Texas-Houston Health Science Center. Classes meet at UT School of Public Health. Intended only for highly qualified undergraduates. Not offered in 2004-2005. Instructor(s): *Reiser*

RELI 546 MLK AND MALCOLM X (3)**The Religious Thought of Martin L. King, Jr. and Malcolm X**

Graduate version of RELI 312. Instructor(s): *Pinn*

RELI 547 BLACK THEOLOGY: 1969–PRESENT (3)**Religion and Revolution: Black Theology from 1969 to Present**

Graduate version of RELI 247. Enrollment limited to 15. Instructor(s): *Pinn*

RELI 548 LIBERATION THEOLOGIES (3)**Liberation Theologies**

Graduate version of RELI 158. Enrollment limited to 15. Instructor(s): *Pinn*

RELI 550 BLACK RELIGIOUS THOUGH (3)**Black Religious Thought**

Graduate version of RELI 240. Enrollment limited to 15. Instructor(s): *Pinn*

RELI 553 THE DEAD SEA SCROLLS (3)**The Dead Sea Scrolls**

Graduate version of RELI 383. Instructor(s): *Henze*

RELI 554 THE BIBLE AND ITS INTERPRETERS (3)**The Bible and Its Interpreters**

Graduate version of RELI 122. Instructor(s): *Henze*

RELI 561 MODERN JEWISH THOUGHT (3)**Modern Jewish Thought**

Graduate version of RELI 371. Instructor(s): *Kaplan*

RELI 562 RELIGION AND ASCETICISM (3)**Religion and Asceticism**

Graduate version of RELI 395. Not offered in 2004-2005. Instructor(s): *Staff*.

RELI 565 MAIMONIDES GUIDE PERPLEXED (3)**Maimonides "Guide for the Perplexed"**

Graduate version of RELI 445. Not offered in 2004-2005. Instructor(s): *Cook*

RELI 568 GERMAN–JEWISH IDEALISM (3)**German-Jewish Idealism and Its Critics**

Graduate version of RELI 468. Not offered in 2004-2005. Instructor(s): *Kaplan*

RELI 570 BUDDHIST WISDOM TEXTS (3)**Buddhist Wisdom Texts**

Graduate version of RELI 470. Instructor(s): *Klein*.

RELI 572 INTRODUCTION TO BUDDHISM (3)**Introduction to Buddhism**

Graduate version of RELI 322. Instructor(s): *Klein*

RELI 577 BUDDHISM, GENDER, & SOCIETY (3)**The Knowing Body: Buddhism, Gender, and the Social World**

Graduate Version of RELI 323. Instructor(s): *Klein, Long*

RELI 580 SEX, SANCTITY, PSYCHOANALYSIS (3)**Sexuality, Sanctity, and Psychoanalysis**

Graduate version of RELI 480 Enrollment limited to 25 Instructor(s): *Kripal, Parsons*

RELI 582 INTRODUCTION TO MYSTICISM (3)**Introduction to Mysticism**

Graduate version of RELI 262. Instructor: *Parsons*.

RELI 584 RELIGION & MODERN THERAPIES (3)**Religion and Modern Therapies**

Graduate version of RELI 430. Instructor(s): *Parsons*

(#) = credit hours per semester

RELI 585 GOD, TIME, AND HISTORY (3)**God, Time, and History**

Graduate version of RELI 123. Not offered in 2004-2005. Instructor(s): *Henze, Maas*

RELI 591 DEATH AND DYING (3)**Death and Dying in Religion and Literature**

Graduate version of RELI 391. Instructor(s): *Staff*.

RELI 595 GOD AND POSTMODERNISM (3)**God and Postmodernism**

Examination of the meanings of postmodernism and their implications for concepts of God, faith, and religious experience. Includes Nietzsche, Bataille, Derrida, Kristeva, Jean-Luc Marion, and selected radical orthodox thinkers. Not offered 2004-2005 Instructor(s): *Staff*.

RELI 596 RELIGION, ASCETICISM & THE BODY (3)**Religion, Asceticism, and the Body**

Graduate version of RELI 395. Not offered in 2004-2005 Instructor(s): *Staff*.

RELI 599 EGOISM, ALTRUISM, & RELIGION (3)**Egoism, Altruism, and the Postmodern Self**

Graduate version of RELI 397. Not offered in 2004-2005 Instructor(s): *Staff*.

RELI 800 RESEARCH AND THESIS (9)**Research and Thesis**

Instructor(s): *Staff*.

RUSS (RUSSIAN)**School of Humanities/Center for Study of Languages****RUSS 101 INTRODUCTION TO RUSSIAN I (4)****Introduction to Russian I**

An introduction to the fundamentals of Russian grammar and basic conversation topics. Includes pronunciation, reading, oral, aural, and translation practice. Also includes a basic introduction to Russian culture. Prerequisite(s): No prior knowledge of Russian. Instructor(s): *Ludwig*

RUSS 102 INTRODUCTION TO RUSSIAN II (4)**Introduction to Russian II**

Continuation of RUSS 101. Prerequisite(s): RUSS 101 or permission of the instructor. Instructor(s): *Ludwig*

RUSS 201 INTERMEDIATE RUSSIAN I (4)**Intermediate Russian I**

A continuation of the fundamentals of Russian grammar and conversation topics. Includes oral, aural, composition, translation, and reading practice. Attention is also given to Russian cultural topics and current events. Prerequisite(s): RUSS 102 or permission of the instructor. Instructor(s): *Ludwig*

RUSS 202 INTERMEDIATE RUSSIAN II (4)**Intermediate Russian II**

Continuation of RUSS 201. Enrollment is limited to 20. Prerequisite(s): RUSS 201 or permission of the instructor. Instructor(s): *Ludwig*

RUSS 301 CONVERSATION & COMPOSITION I (3)**Conversation and Composition I**

Introduction to contemporary political and cultural events through reading Russian newspapers. Also includes discussion of advanced grammar topics. Prerequisite(s): RUSS 202 or permission of the instructor. Instructor(s): *Ludwig*

RUSS 302 CONVERSATION & COMPOSITION II (3)**Conversation and Composition II**

Continuation of RUSS 301. Prerequisite(s): RUSS 301 or permission of the instructor. Instructor(s): *Ludwig*

RUSS 303 SPECIAL TOPICS (3)**Special Topics**

Prerequisite(s): Instructor permission required.

RUSS 311 INTRO TO RUSSIAN CULTURE (3)**Introduction to Russian Culture**

Contents vary from year to year. May be repeated for credit. Course not offered 2004-2005. Instructor(s): *Thompson*

(F) = Fall; (S) = Spring

RUSS 312 SURVEY OF RUSSIAN LITERATURE (3)**Survey of Russian Literature**

This course acquaints the student with writers who have been important to the development of Russian culture. Emphasis on the modern period. Taught in English. Course not offered in 2004-2005. Instructor(s): *Thompson*

RUSS 331 RUSSIAN LIT. & COLONIALISM (3)**Russian Literature and Colonialism**

This course includes a broad survey of post colonial theories starting with Edward Said. This course is based on Ewa M. Thompson's *Imperial Knowledge: Russian Literature and Colonialism*. Readings include Leo Tolstoy, Alexander Pushkin, Valentine Rasputin, Anatoly Rybakov, Alexander Solzhenitsyn, Ludmila Petrushevskaya, Tatiana Tolstaia and Valeiya Novodvorskaya. Course not offered 2004-2005. Instructor(s): *Thompson*

RUSS 351 TOLSTOY (3)**Tolstoy**

Study of major works of Tolstoy. Novels and stories discussed include *War and Peace*; *Anna Karenina*; *The Kreutzer Sonata*; *Family Happiness*; *The Cossacks*; *The Devil*; *The Death of Ivan Ilych*; *Father Sergius*; *The Confessions*; and *Hadji Murad*. Taught in English. Also offered as HUMA 382 Offered Fall 2004. Instructor(s): *Thompson*

RUSS 352 DOSTOEVSKY (3)**Dostoevsky**

Study of the major works of Dostoevsky. No knowledge of Russian required. Novels discussed include *The Brothers Karamazov*; *Crime and Punishment*; *The Idiot*; *The Possessed*; *Notes from the Dead House*; *Notes from the Underground*. Taught in English. Also offered as HUMA 381. Offered Fall 2004. Instructor(s): *Thompson*

RUSS 420 WOMEN IN RUSSIAN LITERATURE (3)**Women in Russian Literature**

The portrayal of women in major works of Russian literature, with particular attention paid to the women writers' presentation of women. No knowledge of Russian required. Also offered as WGST 442. Course not offered 2004-2005. Instructor(s): *Thompson*

RUSS 450 INDEPENDENT STUDY (3)**Independent Study**

Content varies depending on student interests and the availability of instructors. Course not offered 2004-2005. Instructor(s): *Staff*

SANS (SANSKRIT)**School of Humanities/Linguistics****SANS 301 INTRO TO SANSKRIT (3)****Introduction to Sanskrit**

Offered as LING 351

SANS 302 INTRODUCTION TO SANSKRIT II (3)**Introduction to Sanskrit II**

Also offered as LING 352.

SANS 401 ADVANCED SANSKRIT I (3)**Advanced Sanskrit I**

Review of the nominal declensions and the classes of verbs to be followed by a series of readings from Lanman. Special attention will be given to the study of compounds and to Sanskrit verse forms. Also offered as LING 451.

SANS 402 ADVANCED SANSKRIT II (3)**Advanced Sanskrit II**

Continuation of Sans 401. Also offered as LING 452.

SLAV (SLAVIC STUDIES)**School of Humanities/German and Slavic Studies****SLAV 242 POLISH DRAMA I (3)****Polish Drama I**

The reading of Polish 19th- and 20th-century plays with a view to improving student's comprehension of Polish. Equivalent to Second Year Polish. Taught in Polish. Prerequisite: PLSH 102 or equivalent. Offered Fall 2004.

Instructor(s): *Skarczewski*

(*) = credit hours per semester

SLAV 243 POLISH DRAMA II (3)**Polish Drama II**

The reading of Polish nineteenth- and twentieth-century plays with a view to improving student's comprehension of Polish. Equivalent to Second Year Polish. Taught in Polish. Offered Spring 2005. Instructor(s): *Skarczewski*

SLAV 309 SLAVIC CULTURES (3)**Slavic Cultures**

Interdisciplinary introduction to the main currents of Russian, Czech, and Polish cultures. Key moments in history, social trends, music and the arts, the construction of national mythologies through literature. Course offered Fall 2004. Instructor(s): *Skarczewski*

SLAV 320 POLISH POLITICS AND CULTURE (3)**Contemporary Polish and Central European Politics and Culture**

Intensive study of Polish and Central European popular culture, literature, and the changing tides of politics. Emphasis on the post-communist period. Taught in English. Course not offered 2004-2005. Instructor(s): *Staff*

SLAV 332 SOVIET & POST-SOVIET LIT. (3)**Soviet and Post-Soviet Literature**

The course will provide students with an introduction to 20th century Russian, Soviet, and post-Soviet literature and culture by reading works by authors such as Bulgakov, Zamyatin, Akhmatova, Yetushenko, and Pelevin. Some attention will be paid to 20th-Century film and popular music. Course not offered 2004-2005. Instructor(s): *Ludwig*

SLAV 411 MOD POLISH POET IN TRANSLATION (3)**Modern Polish Poetry in Translation**

This course presents the living poets of Poland, from Nobel Prize winners Czeslaw Milosz (1980) and Wislawa Szymborska (1996) to their youngest competitors, Krzysztof Koebler and Maciej Swietlicki. The course explores how resistance and collaboration, Catholicism and Communism, have shaped and continued a major literary tradition of Europe based on a selection of poetry in English translations. Course offered Spring 2005. Instructor(s): *Staff*

SLAV 412 CENTRAL & EAST EUROPEAN FILM (3)**Central and Eastern European Film**

Based on a selection of the best films by the best directors of the region (Forman, Holland, Kieslowski, Polanski, Szabo, Wajda), this course presents Central-Eastern European filmmaking against a background of a totalitarian political system. Course offered Fall 2004. Instructor(s): *Staff*

SLAV 450 INDEPENDENT STUDY (3)**Independent Study**

Content varies depending on student interests and availability of instructors. Instructor(s): *Staff*

SOCI (SOCIOLOGY)**School of Social Sciences/Sociology****SOCI 203 INTRODUCTION TO SOCIOLOGY (3)****Introduction to Sociology**

Introduction to the principal concepts, theories, and methods of sociology. Required (normally) for sociology majors. Limited to freshmen & sophomores. Enrollment is limited to 50. Instructor(s): *Martin*

SOCI 301 SOCIAL INEQUALITY (3)**Social Inequality**

A survey of US inequalities of wealth, status, and power. The situation of various minority groups and social classes. What kinds of inequality are unjustifiable? Can they be abolished? If so, how? The trade-off between equality and such valued goods as freedom and efficiency. Enrollment is limited to 30

SOCI 306 SOCIOLOGY OF GENDER (3)**Sociology of Gender**

Relationship between gender and social role. Development of the contemporary sexual division of labor and process of socialization with reference to family, education, media, and occupations. Also offered as WGST 324. Enrollment is limited to 55.

SOCI 308 HOUSTON: SOCIOLOGY OF A CITY (3)**Houston: The Sociology of a City**

Houston as an exemplar of contemporary urban change. The "golden buckle of the sunbelt"; recovery from the oil boom collapse of the 1980s into a restructured economy and a demographic revolution; the changing politics of education, quality-of-life issues, and interethnic relations, as they interact to shape the urban future. Guest lectures, field trips. Enrollment limited to 30.

(F) = Fall; (S) = Spring

SOCI 309 RACE & ETHNIC RELATIONS (3)**Race and Ethnic Relations**

Historical and contemporary issues and theories of race and ethnic relations in the United States. The key groups covered will be European Americans, African Americans, Native Americans, Asian Americans, and Mexican Americans. Group patterns of assimilation and conflict inform a basic tenet that race and ethnicity are organizing features of society. Enrollment limited to 30.

SOCI 310 URBAN SOCIOLOGY (3)**Urban Sociology**

Study of urban development, form, and heterogeneity; and the conditions of life associated with living in cities. Examines the rise of cities, their growth and purposes in the U.S. and internationally. Examines behavioral adaptations required by city life, and considers urban subcultures.

SOCI 313 DEMOGRAPHY (3)**Demography**

Introduction to the study of the dynamics of population change. Includes demographic data sources, components of population change, mortality patterns, family planning, the measurement of migration flows, and population-economic models. Enrollment is limited to 30. Instructor(s): *Donato*

SOCI 317 CONTEMPORARY THEORY (3)**Contemporary Sociological Theory**

Discussion course on major recent trends in sociological theory, especially in the writings of Goffman, Habermas, Bourdieu, Foucault, and Smith. Includes symbolic interactionism, critical theory, cultural studies, text/discourse/semiotic analyses, feminist theory, and postmodern sociology.

SOCI 321 CRIMINOLOGY (3)**Criminology**

Study of criminal behavior. Includes social construction of crime, elementary forms of crime, empirical patterns of crime, and theories of crime. Field work required. Enrollment limited to 40. Prerequisite: SOCI 203 or departmental exam.

SOCI 325 SOCIOLOGY OF LAW (3)**Sociology of Law**

Introduction to Sociological theories of law. Examines central question in the field: Do the social characteristics of legal actors influence legal outcomes? Focuses on the role of race, sex, and social status. Field work required. Limit enrollment to 30.

SOCI 334 SOCIOLOGY OF THE FAMILY (3)**Sociology of the Family**

This course will teach students the important influences and consequences of American family life. We will consider issues dating, marriage and cohabitation, divorce, family structure, gay marriage, domestic violence, and household labor. We will also examine the role of society in shaping family norms and constraints on family behaviors. Also offered as WGST 325. Instructor(s): *Heard*

SOCI 340 CONTEMPORARY MEXICAN SOCIETY (3)**Contemporary Mexican Society**

In this course, we seek a sociological understanding of contemporary Mexican society. After reviewing the historical roots of the modern Mexican state, we will examine how economic, political, and social institutions operate in Mexico, their formal & informal structures, & then consider their consequences. Enrollment is limited to 30. Instructor(s): *Donato*

SOCI 345 INTRO TO MEDICAL SOCIOLOGY (3)**Introduction to Medical Sociology**

This course will explore the relationship between social factors and health, illness, and mortality. Topics include the stratification of health by race/ethnicity, gender, and social class; environmental context and illness; lifestyle and behavioral risks (smoking, drinking, drugs, and sexual behavior); STD's and; and cross-national comparisons of health and patterns of disease. Enrollment is limited to 60. Instructor(s): *Gorman*

SOCI 367 ENVIRONMENTAL SOCIOLOGY (3)**Environmental Sociology**

Applications of research and theory in the social sciences to an understanding of the attitudes and behaviors that contribute both to environmental problems and to their remediation; examination of the interactions between population pressures and human appetites, technological developments and ecological constraints as they combine to shape the human prospect. Enrollment is limited to 30.

(#) = credit hours per semester

SOCI 386 AFRICAN AMERICANS IN SOCIETY (3)**African Americans in Society**

Contemporary life of Blacks (African-Americans) in society. The meaning and significance of race, prejudice and discrimination; social institutions such as the economy, education, and family; and potential strategies such as affirmative action and reparations.

SOCI 390 RESEARCH METHODS (3)**Research Methods**

An introduction to the methods sociologists use to study human societies and their members. Hypothesis formulation and research design; qualitative studies through observation and interviews; historical and comparative approaches; sample surveys and the statistical analysis of quantitative data; political and ethical issues in social research. Enrollment is limited to 25.

SOCI 395 FEMINIST SOCIAL THOUGHT (3)**Feminist Social Thought**

Study of feminist theory as critique and reconstruction. Includes Wollstonecraft and de Beauvoir, as well as contemporary debates about equity, difference, knowledge, sexuality, and power. Also offered as WGST 460.

SOCI 398 SOCIAL STATISTICS (3)**Social Statistics**

Emphasizes the practical uses of statistics to answer the types of questions sociologists ask. We learn sample description, sampling and probability, sampling theory, and how to make inferences from samples to populations. We study and apply common univariate, bivariate, and multivariate statistics. Because most statistical analysis is done with the aid of computers, we also learn how to use a common statistical package. Enrollment is limited to 20.

SOCI 399 IMMIGRATION AND PUBLIC HEALTH (3)**Immigration and Public Health**

This course explores the relationship between international migration and public health both historically and in the contemporary period. We will discuss the substantive and methodological complexities of the health-migration relationship and their implications for public policy debates worldwide. This course is taught at the UT School of Public Health and cross-listed as PHYS 3998. Enrollment limited to 30.

SOCI 403 INDEPENDENT STUDY (HOURS VARIABLE)**Independent Study**

Directed reading and written papers on subjects not regularly offered; advanced study of subjects on which courses are offered. Course is repeatable for credit. Prerequisite(s): permission of the department.

SOCI 404 INDEPENDENT STUDY (HOURS VARIABLE)**Independent Study**

Directed readings and essay writing on special subjects. Includes advanced study in subjects from other courses, if desired. May be repeated for credit. Prerequisite(s): permission of the department.

SOCI 405 ETHNOGRAPHIC RESEARCH (3)**Ethnographic Research**

Beginning with the theoretical frameworks for ethnographic and other qualitative research methods, the course will cover ethics, entry, observation, field notes, interviewing, data analysis, and writing reports. It will offer a hands-on approach combining lectures, research through lectures, readings, and fieldwork. Field projects can be conducted in group, classroom, campus, or community settings. Enrollment limited to 10. Instructor: *Smith*

SOCI 411 SOCIAL CHANGE (3)**Social Change**

Analysis of accelerating trends that have transformed human societies during the past thirty years, with particular reference to ongoing transformations in the economic foundations and ethnic composition of the United States, and in threats to the global environment and capitalist world system: individual and collective responses to the challenges of our time.

SOCI 421 THE CRAFT OF SOCIOLOGY (3)**The Craft of Sociology**

Exploration of work of sociology. Includes its historical and social origins and development, and its shifting philosophical foundations, methodological refinements, and ethical and political implications, as well as discussion of classic and controversial sociological studies. Sociology majors must take this course or SOCI 390.

SOCI 425 POLITICAL SOCIOLOGY (3)**Political Sociology**

Can democracy survive its enemies: tyranny of ruling elites and classes, tyranny of the majority, ethnic and religious conflict, individualism, government secrecy, citizen apathy? Also offered as POLI 425. Enrollment limited to 8 in SOCI 425 and 8 in POLI 425.

(F) = Fall; (S) = Spring

SOCI 430 SOCIOLOGY OF RELIGION (3)**Sociology of Religion**

Study of religious beliefs, symbols, actions, organizations, roles, and various interrelationships between religion and society. Includes new religious movements, secularization, and fundamentalism. Field work required. Enrollment is limited to 40.

SOCI 431 THE CRIMINAL JUSTICE SYSTEM (3)**The Criminal Justice System**

Examination of the major components of the criminal justice system: 1) Police role and culture, contemporary approaches; 2) Courts (judges, prosecutors, defense attorneys, plea bargaining, juries, appeals, pre-sentence investigation, and sentencing); and 3) Corrections, with attention to responsibility and punishment, prisons, probation, parole, and alternatives. Enrollment limited to 30.

SOCI 436 RSRCH SEM: HOUSTON SURVEY (4)**Advanced Research Seminar: The 2004 Houston Area Survey**

Continuation of the series of annual surveys on how Houston residents are reacting to changes in American society. Includes sampling procedures, questionnaire construction, interviewing, data analysis, and the logic and skills of survey research. Culminates in a research report that develops empirical hypotheses and tests their validity with survey findings. Enrollment limited to 10.

SOCI 440 FAMILY INEQUALITY (3)**Family Inequality**

This is an intense, upper-level seminar focused on aspects of inequality concerning American families. We will discuss how well-known modes of inequality, such as race/ethnicity, gender, and social class, affect individual families, as well as how families serve as agents of inequality along these lines. Primarily intended for sociology majors. Prerequisite(s): SOCI 334.

SOCI 445 SOCIOLOGY OF CULTURE (3)**Sociology of Culture**

This course surveys the different sociological approaches to studying culture. Part I focuses on the relationships between culture and social structure, including various theoretical approaches. Part II examines different perspectives on modern culture.

SOCI 460 INEQUALITY&HLTH ACROSS LIFE (3)**Inequality and Health Across the Life Course**

This course focuses on the relationship between health and social inequality at multiple points across the life course—in utero, early childhood, adolescence, adulthood, and old age. Three forms of inequality, and their importance for health, are examined in depth: socioeconomic, racial/ethnic, and gender. This will be taught at UT SPH and cross-listed with PH 1498L. Enrollment is limited to 7. Prerequisite: SOCI 345

SOCI 465 GENDER AND HEALTH (3)**Gender and Health**

This course will examine the relationship between gender and health, both physical and mental. We will begin the semester by examining issues related to gender & health in the U.S. We will spend the second half of the semester examining gender & health in an international context. THIS COURSE WILL BE TAUGHT AT UT-SPH NOT AT RICE. Also offered as WGST 465. Instructor(s): *Gorman*

SOCI 492 DIRECTED HONORS RESEARCH (3)**Directed Honors Research**

Sociological research under faculty supervision. Includes first-semester review of relevant literature and the preparation of an outline for planned research, followed by second-semester research and the writing of an honors thesis. Open only to students in sociology honors program.

SOCI 493 DIRECTED HONORS RESEARCH (3)**Directed Honors Research**

Sociological research under faculty supervision. Includes first-semester review of relevant literature and preparation of outline for planned research, followed by second-semester research and the writing of an honors thesis. Open only to students in sociology honors program.

SOSC (SOCIAL SCIENCES)**School of Social Sciences/Social Sciences Division****SOSC 100 AP HUMAN GEOGRAPHY (3)****AP Human Geography**

AP Credit

(*) = credit hours per semester

SOSC 102 INTELLECT FOUND OF SOCIAL SCI (3)**Intellectual Foundations of the Social Sciences**

A survey of fundamental ideas, theories and approaches that have shaped the intellectual heritage of the social sciences.

SOSC 300 SOCIAL SCIENCE & PUBLIC POLICY (3)**Social Science and Public Policy**

Survey of how different disciplines in the social sciences treat public policy. Includes specific policy questions as a means of highlighting each discipline's approach to the study of public policy.

SOSC 301 POLICY ANALYSIS (3)**Policy Analysis**

Familiarizes students with the analytical tools necessary for evaluating and analyzing public policies.

SOSC 305 COMTEMP PALESTIAN ISSUES (3)**Contemp Palestian Issues: Trans Towards Nation Bldg****SOSC 330 HEALTH CARE REFORM IN U.S. (3)****Health Care Reform in the 50 States**

Examination of those states that have undertaken comprehensive health system reform, have carried out more limited revisions, or have failed to even begin the process, assessing successes and failures. Includes general theories of state-federal relationships and the role of the federal government in state health reform.

SOSC 400 POLICY STUDY RESEARCH SEMINAR (HOURS VARIABLE)**Policy Studies Research Seminar**

Advanced research in public policy. Students will complete a policy study or policy analysis in a substantive policy area. Prerequisite(s): permission of instructor. Prerequisite(s): permission of instructor.

SOSC 420 COMPETITION & MANAGD HEALTH CARE (3)**Health Care: Competition and Managed Care**

Introduction to managed care and its distinguished characteristics. Includes managed care and market competition and impact on science in general and medical science in particular, as well as evaluation of how competition and regulation influence the development, assessment, and diffusion of new health technologies within the managed care framework.

SOSC 430 THE SHAPING OF HEALTH POLICY (3)**The Shaping of Health Policy**

Study of how health-care policy decisions are made and implemented, using an interdisciplinary approach involving government, law, ethics, economics, and history. Includes case discussions of major policy problems by faculty experts in these disciplines and guest speakers who are leading national figures in the shaping of public policy. Open to juniors and seniors with permission of instructor. Class meets at an off-campus location. For information, call (713) 500-9491.

SPAN (SPANISH)**School of Humanities/Center for Study of Languages****SPAN 101 INTRODUCTION TO SPANISH I (5)****Introduction to the Spanish Language and Culture I**

Based on a task-oriented approach to language and culture learning, Spanish 101 allows the beginning student to develop the necessary abilities to communicate satisfactorily in Spanish in everyday situations. Students are expected to be active participants in the learning process. Class meetings are not based on lectures, but rely heavily on student interaction. Section 7 is an intensive course (3 weeks) that runs from July to mid-August. Enrollment limited to 20 per section. Prerequisite(s): No prior knowledge of Spanish. Instructor(s): *Staff*

SPAN 102 INTRODUCTION TO SPANISH II (5)**Introduction to the Spanish Language and Culture II**

Continuation of Span 101. Enrollment limited to 20 per section. Prerequisite(s): SPAN 101, placement test, or permission of the instructor.

SPAN 150 LATIN AMER SHORT FICT (FSEM) (3)**Freshman Seminar: Latin American Short Fiction (Emphasis on Borges and Cortazar)**

Readings of classic works of short fiction by modern Latin American masters, with special emphasis on the stories of Jorge Luis Borges and Julio Cortázar. Close reading, interpretive essays. Taught in English. Open to first-year students only, except by permission of the instructor. Enrollment limited to 15. Also offered as FSEM 150. Course not offered 2004-2005. Instructor(s): *Kauffmann*

(F) = Fall; (S) = Spring

SPAN 152 HISPANIC ESSAY (FSEM) (3)**Freshman Seminar: The Hispanic Essay**

Readings (in English translation) from major modern Spanish and Latin-American essayists, including Miguel de Unamuno, José Ortega y Gasset, Mariá Zambrano, Jose Martí, Jose Enrique Rodó, Alfonso Reyes, Victoria Ocampo, Gabriela Mistral, Jorge Luis Borges, and Octavio Paz. Close reading and appreciation of essays will be the focus of discussion, presentations, and short interpretive papers. Taught in English. Open to first-year students only, except by permission of the instructor. Also offered as FSEM 152. Not offered 2004-2005. Instructor(s): *Kauffmann*.

SPAN 201 INTERMEDIATE SPANISH I (4)**Intermediate Spanish I**

Based on a task-oriented approach to language and culture learning, Spanish 201 allows the intermediate students to improve and expand their communicative skills. Students are expected to be active participants in the learning process. Class meetings are not based on lectures, but rely heavily on student interaction. Enrollment limited to 20 per section. Prerequisite(s): SPAN 102, placement test, or permission of the instructor.

SPAN 202 INTERMEDIATE SPANISH II (4)**Intermediate Spanish II**

Continuation of SPAN 201. SPECIAL NOTE Section 5: Three week intensive course taught the last three weeks of May in Grenada, Spain. Proficiency-based instruction focused on further developing the four communicative skills (reading, writing, speaking, listening). Particular emphasis on development of cultural competence. Requires separate registration with the Office of International Programs; see <http://www.ruf.rice.edu/~abroad/>. Prerequisite(s): SPAN 201, placement test, or permission of the instructor.

SPAN 203 SPANISH I FOR BICULTURAL STUD (3)**Spanish I for Bicultural Students**

Spanish 203 is intended for students who have been exposed to Spanish in homes or communities and want to improve their fluency and formal knowledge of the language and Hispanic cultures. The class will explore the structural elements necessary to begin to speak and write with confidence. Enrollment limited to 20 per section. Prerequisite(s): No previous formal instruction in Spanish is required. Placement Test or permission of the instructor. Instructor(s): *Brogdon-Gomez*

SPAN 204 INT SPAN BICULTURAL STUDENTS (4)**Intermediate Spanish for Bicultural Students**

Consolidates and builds on students' existing knowledge of Spanish in order to enable them to speak and write with greater proficiency. Authentic cultural materials- short stories, newspaper articles, internet, films, etc.- will be used to enhance ability to read, write and speak Spanish and increase knowledge of Hispanic cultures. Prerequisite(s): SPAN 103, significant exposure to Spanish, placement test, or permission of the instructor. Enrollment limited to 20 per section.

SPAN 214 INTER SPAN ENG & SCI II (4)**Intermediate Spanish for Engineering and Sciences II**

Three week intensive course open to students enrolled in the College of Engineering. Taught the last three weeks of May in Seville, Spain. Proficiency-based instruction focused on further developing the four communicative skills (reading, writing, speaking, listening) using original content relevant to the engineering fields. Particular emphasis on development of technical vocabulary and cultural competence in the engineering workplace. Requires separate registration with the Office of International Programs. See <http://www.ruf.rice.edu/~abroad/>. Prerequisite(s): SPAN 201 or 202 and permission of the instructor required.

SPAN 301 ADVANCED SPANISH I (3)**Advanced Spanish I**

This course aims to bring students from an intermediate towards an advanced level of proficiency in Spanish. Students will develop fluency and communicative competence through exposure to literary texts, newspaper and web articles, films and videos, in their cultural context. Emphasis will be on conversation strategies, vocabulary expansion and the writing of essays. Enrollment limited to 20 students per sections. Prerequisite(s): SPAN 202, placement test, or permission of the instructor.

SPAN 302 ADVANCED SPANISH II (3)**Advanced Spanish II**

Continuation of SPAN 301. Enrollment limited to 20 per section. Prerequisite(s): SPAN 301, placement test, or permission of the instructor.

SPAN 303 ADV SPAN BICULTURAL STUDENTS (3)**Advanced Spanish for Bicultural Students**

Spanish 303 aims to bring students to advanced proficiency in Spanish, enabling them to interact confidently in a wide variety of contexts, while providing them with cultural insights about the Hispanic world. It is designed for students who come with bi-cultural exposure and at least intermediate proficiency in Spanish. Instructor(s): *Salas*

(#) = credit hours per semester

SPAN 304 LANGUAGE/CULTURE OF HISPANICS (3)**Language and Culture of Hispanics in the United States**

The aim of this course is to to achieve advanced level of proficiency. The course will explore issues of the cultural identity of Spanish speakers by studying Hispanic culture in the U.S. Based on the study of Hispanic culture in the U.S. from three different viewpoints: historical, literary, and sociolinguistics. Prerequisite(s): SPAN 303, placement test, or permission of instructor. Enrollment limited to 20.

SPAN 305 COMMERCIAL SPANISH I (3)**Commercial Spanish I**

This course will familiarize students with the world of business in Spanish through activities dealing with current socio-economic events in Latin America and Spain, commercial correspondence, cross cultural awareness issues presentations. Supranational organizations in the area will be topic of a final project for the class. Prerequisite(s): Placement test (300 or higher) or permission of the instructor. Instructor(s): *Narbona*

SPAN 306 COMMERCIAL SPANISH II (3)**Commercial Spanish II**

Further development of Spanish 305 goals: vocabulary, concepts, language and cultural skills necessary to communicate successfully in the socio-economic and cultural milieu of contemporary Hispanic countries. A practical case of marketing will be the final project for the class. Spanish 305 is not required for the class. Enrollment is limited to 20. Prerequisite(s): Placement test (300 or higher) or permission of the instructor. Instructor(s): *Narbona*

SPAN 307 LANG & CULT MEDICN & HLTH CARE (3)**The Language and Culture of Medicine and Health Care**

An exploration of the differences between Anglo-American and Latin-American cultures of medicine. This course will navigate the treacherous socioeconomic and cultural rift between high-tech Anglo-American medical institutions and rural Latin-American conceptions of the role of doctors, medicine, and health care. Enrollment limited to 20. Instructor(s): *Albin*

SPAN 308 LANG OF MEDICINE & HLTH CARE (4)**The Language of Medicine and Health Care**

Students will continue to study the body's major organ systems and apply their knowledge to the translation of patient education materials, case reports, and other clinical documents. Students enrolled in this course will be required to work 40 clock-hours as clinical interpreters in the Texas Medical Center and other approved institutions and organizations. Enrollment limited to 20. Prerequisite(s): Placement test or permission of the instructor. Instructor(s): *Albin*

SPAN 310 LANG MED & HLTH CARE PRACTICUM (HOURS VARIABLE)**The Language of Medicine and Healthcare Practicum**

The number of credits is based on the number of internship hours. This class is taken in conjunction with SPAN 308. However, special permission to take separately may be granted by instructor. Prerequisite(s): Permission of the instructor. Instructor(s): *Albin*

SPAN 313 SCIENTIFIC SPANISH I (3)**Scientific Spanish I**

Content-based course in Spanish in which the student will be familiarized with uses of the language necessary to deal with scientific issues in the Spanish-speaking world. Activities in class will include reading current, scientific texts, presentations and special issues concerning the fields in which the student is interested. Enrollment is limited to 20. Prerequisite(s): Placement test (300 or higher) or permission of the instructor.

SPAN 314 SCIENTIFIC SPANISH II (3)**Scientific Spanish II**

Continuation of SPAN 313. Content-based course in Spanish dealing with vocabulary and scientific issues in the Spanish-speaking world. Activities in class will include reading current scientific texts, presentations, authentic tasks and special issues concerning the fields in which the student is interested. Spanish 313 is not required. Enrollment limited to 20. Prerequisite(s): Placement test (300 or higher) or permission of the instructor. Instructor(s): *Narbona*

SPAN 315 ART & MECH OF TRANSLATION I (3)**The Art and Mechanics of Translation I**

An introduction to the craft of translation. Working with various types of texts in English and Spanish, students will begin to acquire the theoretical, linguistic, and research tools to solve common translation problems. This course will improve Spanish proficiency, broaden cross-cultural understanding, and students' communicative abilities. Prerequisite(s): SPAN 302, 303, placement test, or permission of instructor. Instructor(s): *Albin*

SPAN 316 ART & MECH OF TRANSLATION II (3)**The Art and Mechanics of Translation II**

Continuing the aims and methods of Span 315, this course takes into account that effective translators are first good readers, critically aware of the rhetorical strategies and cultural assumptions of writers. The goal of this sequence is to train students in the exacting craft of reading and analyzing source texts, and in producing faithful translations. Prerequisite(s): Span 315 or permission of instructor. Instructor(s): *Albin*

SPAN 340 SPANISH CULTURE & CIVILIZATION (3)**Spanish Culture and Civilization**

Topics relating to Spain's history and the development of social, political and economic institutions form the basis for extended conversation, discussion, and composition. Prerequisite(s): Third-year Spanish or permission of the instructor. Course offered Fall 2004. Instructor(s): *Castañeda*

SPAN 341 MASTER WKS OF SPAN ART & LIT (3)**Master Works of Spanish Art and Literature**

Selected masterpieces of Spanish art and literature; emphasis on specific aesthetic achievement of each work in its European and Spanish contexts, and on how the work reflects important cultural, social, and ideological issues of its times. Exemplary pairs (an author and an artist) from key historical moments will be studied. Prerequisite(s): Third-year Spanish or permission of instructor; no prerequisite when course offered in English. Course offered Spring 2005. Instructor(s): *Kauffmann*

SPAN 342 WRITING WORKSHOP (3)**Writing Workshop**

Course designed to develop students' competence in written expression through close readings of poems, short stories, plays and newspaper articles. Students will learn the functions and strategies of different writing styles. Prerequisite(s): Third-year Spanish or permission of instructor. Course not offered 2004–2005. Instructor(s): *Pérez*

SPAN 345 MAPPING LATIN AMER CULTURE (3)**Mapping Latin American Culture**

Explores key issues in Latin American culture. Important aspects of the contemporary situation in Latin America are also studied, including phenomena such as globalization, the rise of mega-cities, migration, authoritarianism, the impact of colonization and the rise of national states. Prerequisite(s): Third-year Spanish or permission of the instructor. Course not offered 2004–2005 Instructor(s): *González-Stephan*

SPAN 346 CONTEMPORARY MEXICO (3)**Contemporary Mexico**

Topics discussed include: the Mexican political system, the debate on national identity, border culture, urbanization, regionalism, and indigenous cultures. Uses a wide range of texts to introduce students to the richness and complexity of contemporary Mexican culture. Prerequisite(s): Third-year Spanish or permission of the instructor. Course offered Fall 2004. Instructor(s): *van Delden, Gaytan*

SPAN 347 CONTEMPORARY MEXICO: STUDY TRIP (1)**Contemporary Mexico: Study Trip**

A one-week study trip to Zacatecas, Mexico intended as cultural immersion program. Course objectives are: perfecting effective communicative skills, learning about the institutions, culture and traditions of Mexico and doing research and field work in Spanish. Taught in conjunction with Span 346. Enrollment limited to 20. Prerequisite(s): Completion of Span 346 or 311 or approval of instructor. Course offered Spring 2005. Instructor(s): *Gaytan*

SPAN 348 THE SEARCH FOR EL DORADO (3)**The Search for El Dorado**

From the time of Columbus to today, the lands we call Latin America have been imagined as a place of riches waiting to be discovered. This course will begin with diaries and chronicles of the conquistadores, and extends through to twentieth-century accounts of exploration and exploitation, including works by figures such as Neruda, Vallejo, Arguedas. Prerequisite(s): Third-year Spanish or permission of the instructor. Course offered Fall 2004. Instructor(s): *Jenckes*

SPAN 350 SOCIOLINGUISTICS OF SPANISH (3)**Sociolinguistics of Spanish**

Analysis of the modern varieties of Spanish covering phonetics, vocabulary, morphosyntax, and pragmatics. The course requires the completion of a research project with an empirical database. Prerequisite(s): Third-year Spanish or permission of the instructor. Also offered as LING 421. Course offered Spring 2005. Instructor(s): *Salaberry*

SPAN 365 SPAIN'S GOLDEN AGE (3)**Spain's Golden Age**

This course will deal with the history, politics, culture, art, and literature which justify the use of the term Golden Age for the period of the Hapsburg Dynasty (1517–1700). Prerequisite(s): Third-year Spanish or permission of the instructor. Course offered Spring 2005. Instructor(s): *Castañeda*

(#) = credit hours per semester

SPAN 366 GOLDEN AGE DRAMA (3)**Golden Age Drama**

Emphasis on the birth of the modern Spanish theater and the primary role played by Lope de Vega. Other dramatists to be studied are Guillén de Castro, Tirso de Molina, Mira de Amescua, and Ruiz de Alarcón. To be taught in English. Prerequisite(s): Third-year Spanish or permission of the instructor. Course not offered 2004-2005. Instructor(s): *Castañeda*

SPAN 368 THE DON JUAN THEME (3)**The Don Juan Theme**

Studies the impressive trajectory of one of the world's most popular and intriguing legends. Works by Tirso de Molina, Molière, Mozart, Lord Byron, George Bernard Shaw, and others. Several film versions of the Don Juan story will also be shown. Taught in English. Course offered Fall 2004. Instructor(s): *Castañeda*

SPAN 370 SURVEY OF SPANISH LITERATURE (3)**Survey of Spanish Literature**

A genre-based (poetry, narrative fiction, drama, essay) survey of the main movements in Spanish literature from medieval times to the present. Prerequisite(s): Third-year Spanish or permission of the instructor. Course offered Spring 2005. Instructor(s): *Pérez*

SPAN 374 THE INVENTION OF SPAIN (3)**The Invention of Spain (1868-1936)**

Diverse constructions of national identity in Spanish painting, literature, and philosophy from the Revolution of 1868 to the Spanish Civil War. Emphasis on cultural and social conditions during this formative period, and the competing visions of Spain offered by leading artists and intellectuals. Prerequisite(s): Third-year Spanish or permission of the instructor. Course not offered 2004-2005. Instructor(s): *Kauffmann*

SPAN 375 THE SPANISH CIVIL WAR (3)**The Spanish Civil War**

Prelude to World War II and culmination of perennial struggles between the so-called "two Spains," the Spanish Civil War (1936-39) is a watershed moment in modern Spanish and European history. Interdisciplinary, multi-media approach: the war seen through Spanish and foreign novels, poetry, film, painting, journalism, songs, and posters. Prerequisite(s): Third-year Spanish or permission of the instructor. Course not offered 2004-2005. Instructor(s): *Kauffmann*

SPAN 376 POETRY AND CULTURE (3)**Poetry and Culture**

Study of contemporary poetry and its cultural functions. Students engage with poetry through analysis and interpretation of selected Spanish poets. Students also practice writing and translating poems. Prerequisite(s): Third-year Spanish or permission of the instructor. Course offered Fall 2004. Instructor(s): *Pérez*

SPAN 378 CURRENT ISSUES IN SPAIN (3)**Current Issues in Spain**

Exploration of diverse cultural aspects of today's Spain through films and newspaper articles. The topics discussed will serve as a springboard for further development of writing skills. Prerequisite(s): Third-year Spanish or permission of instructor. Course offered Spring 2005. Instructor(s): *Pérez*

SPAN 379 LITERARY TRANSLATION (3)**Literary Translation**

Overview of modern theories of literary translation, and practice in Spanish-English (and limited English-Spanish) literary translation, using examples from diverse genres of Spanish and Latin American literature. Enrollment limited to 25. Prerequisite(s): Third-year Spanish or equivalent. Course offered Fall 2004. Instructor(s): *Kauffmann*

SPAN 380 THE EVOLUTION OF SPANISH (3)**The Evolution of Spanish**

This course provides an introduction to (1) major historical changes that led to the evolution of Proto-Romance (Vulgar Latin) to the Castilian dialect of Spanish (español or castellano), and (2) current developments and expected changes in the future of the various representatives of former Castilian dialect. Prerequisite(s): Third-year Spanish or permission of the instructor. Also offered as LING 424. Course not offered 2004-2005. Instructor(s): *Salaberry*

SPAN 381 THEORIES OF L2 DEVELOPMENT (3)**Theories of L2 Development**

This course surveys and critiques various theories of second language acquisition. Major topics are: analysis of linguistic, cognitive and social processes in the development of second languages, formal hypotheses of non-academic and classroom L2 learning, analysis of various SLA research methodologies and interpretation of findings from SLA research. Also offered as LING 314. Prerequisite(s): Third-year Spanish or permission of instructor. Course not offered 2004-2005. Instructor(s): *Salaberry*

(F) = Fall; (S) = Spring

SPAN 382 THE ACQUISITION OF L2 SPANISH (3)**The Acquisition of L2 Spanish**

This course reviews the available research on the acquisition of the phonology, vocabulary, morphosyntactic and discursive-pragmatic features of Spanish as a second language. Aims to provide students with a thorough understanding of second language acquisition processes that are specific to Spanish but generalizable to other languages as well. Also offered as LING 418 Prerequisite(s): Third-year Spanish or permission of the instructor Course not offered 2004-2005 Instructor(s): *Salaberry*

SPAN 385 FOUNDATIONS OF SPAN-AMER LIT (3)**Foundations of Spanish American Literature**

How did Spanish American literature acquire an identity of its own? This course attempts to answer this question by analyzing a number of foundational works of Spanish American literature in conjunction with later works that revise and rewrite key themes in the continent's literary tradition. Prerequisite(s): Third-year Spanish or permission of the instructor. Course not offered 2004-2005 Instructor(s): *van Delden*

SPAN 386 CULTURE & POWER IN LAT AM (3)**Culture and Power in Latin America**

This course uses a variety of materials and sources to examine the epistemologies of coloniality in Latin America, with a focus on their European and Western origins. Explore various aspects of the discourses of coloniality and subalternity in a range of cultural productions (cinema, poetry, narrative, salsa, Latin rock music). Prerequisite(s): Third-year Spanish or permission of the instructor. Course offered Spring 2005. Instructor(s): *González-Stephan*

SPAN 388 THE LATIN AMERICAN SHORT STORY (3)**The Latin American Short Story**

Latin American writers have achieved great distinction in the genre of the short story. This course studies texts by some of the continent's best-known short-story writers, such as Cortázar, Borges, Monterroso, Rulfo, Fuentes, García Márquez, Elena Garro, Ana Lydia Vega, Clarice Lispector, Benedetti, Uslar Pietri, Massiani, Lemebel, Asis, and Carpentier. Prerequisite(s): Third-year Spanish or permission of the instructor. Course offered Spring 2005. Instructor(s): *González-Stephan*

SPAN 390 HISPANIC CINEMA (3)**Hispanic Cinema**

This course examines the ways in which films in both Spain and Latin America have represented the cultural contexts of their countries. Focus is on the theme of power, and the consequences on social and individual lives. Also offered as WGST 390. Prerequisite(s): Third-year Spanish or permission of the instructor. Course offered Fall 2004. Instructor(s): *González-Stephan*

SPAN 392 DECLARING THE NEW: (3)**Declaring the New: The Politics of the Avant-Garde in Latin America**

This course considers the literary, historical, and political implications of an artistic practice based on novelty. Readings ranging from Borges, Huidobro, Mariátegui and the Chilean neo-avant-garde of the 1970's and 80's. Prerequisite(s): Third-year Spanish or permission of the instructor. Course not offered 2004-2005 Instructor(s): *Jenckes*

SPAN 393 CARIBBEAN FICTION (3)**Caribbean Fiction**

In spite of the region's political fragmentation and linguistic diversity, the Caribbean in many ways constitutes a unified literary region. This course examines the differences and commonalities in the responses to the distinctive features of Caribbean history and geography in works by English-, Spanish-, French-, and Dutch-speaking authors. Authors studied include Alejo Carpentier, Reinaldo Arenas, Rosario Ferre, V.S. Naipaul, George Lamming, Jean Rhys, Cristina Garcia, Patrick Chamoiseau, and Frank Martinus Arion. Taught in English. Instructor(s): *van Delden*

SPAN 394 BORGES AND HIS SUCCESSORS (3)**Borges and His Successors**

Jorge Luis Borges is widely regarded as one of the most important "universal" writers of the twentieth century. This course will examine how other writers interpreted, resisted, and/or continued his interrogations of origins, narrative, tradition, and other institutions. Prerequisite(s): Third-year Spanish or permission of the instructor. Offered Fall 2004. Instructor(s): *Jenckes*

SPAN 395 DIALOGUE OF THE AMERICAS (3)**Dialogue of the Americas**

The history of Latin America since the nineteenth century has been profoundly shaped by its relationship to the "North" (the United States of America), as a model either to be imitated or rejected. This course examines both positions (emulation and detraction) as reflected in literature, painting, film, and political texts. Prerequisite(s): Third-year Spanish or permission of the instructor. Course not offered 2004-2005. Instructor(s): *González-Stephan*

SPAN 396 WE THE PEOPLE: REPRESENTATIONS (3)**We the People: Representations of the Popular in the Americas**

This course will consider different representations of "the people" from the inceptions of U.S. and Latin American independence to twentieth-century approaches to populism. Readings include Jefferson, Bolívar, Emerson, Martí, Diego Rivera, WPA art, Neruda, Perón, MLK, Menchú. Taught in English. Course offered Spring 2005. Instructor(s): *Jenckes*

SPAN 401 LITERARY THEORY/HISPANIC TEXTS (3)**Literary Theory/Hispanic Texts**

Overview of major schools in contemporary literary theory (e.g., Formalist, Structuralist, Post-structuralist, Marxist, Feminist, Neo-historicist), including Hispanic contributions to and adaptations of such theory where relevant, using texts from Spain and Latin America as study examples. Prerequisite(s): Advanced Spanish or permission of the instructor. Course not offered 2004-2005 Instructor(s): *Kauffmann*

SPAN 410 THE PICARESQUE NOVEL (3)**The Picaresque Novel**

This course will deal with the relationships connecting the picaresque genre with the Libros de caballerías, the Novela pastoril, and Don Quijote. Among the principal texts: *Lazarillo de Tormes*, *Guzmán de Alfarache*, *El buscón*, *Gil Blas de Santillana*, and *Nuevas andanzas de Lazarillo*. Prerequisite(s): Advanced Spanish or permission of the instructor. Course not offered 2004-2005 Instructor(s): *Castañeda*

SPAN 412 DON QUIJOTE (3)**Don Quijote**

Cervantes's masterpiece is studied in its relationship to the books of knight errantry, and to the picaresque and pastoral novels, with emphasis on the innovative techniques of Cervantes which contribute to the birth of the modern novel. Prerequisite(s): Advanced Spanish or permission of the instructor. Course offered Spring 2005. Instructor(s): *Castañeda*

SPAN 414 CALDERON'S THEATER (3)**Calderon's Theater**

This course will cover the principal dramatic works which have earned for Calderón the distinction of being the most important philosophical and religious dramatist of the Golden Age. Among other dramatists to be studied are Moreto and Rojas Zorrilla. Course not offered 2004-2005 Prerequisite(s): Advanced Spanish or permission of the instructor. Instructor(s): *Castañeda*

SPAN 420 DISPUTED GENERATION OF 1898 (3)**The Disputed Generation of 1898**

The origins and fortunes of the Generation of 1898 as a historiographic concept. What have been the conceptual and historiographic gains and losses, and the main ideological functions of the concept of the Generación del 98 since it was invented (separately, by Ortega y Gasset and Azorín, and with differing referents!) in 1913? Prerequisite(s): Advanced Spanish or permission of the instructor. Course not offered 2004-2005. Instructor(s): *Kauffmann*

SPAN 422 UNAMUNO AND ORTEGA (3)**Unamuno and Ortega**

Intellectual relations and mutual influences of two figures whose confrontation played a crucial role in defining the situation of Spain from 1900-1936. Reception of their thought by major writers of their time and ours (A. Machado, M. Zambrano, F. Azaña, J.L. Borges, O. Paz, L. Zea). Prerequisite(s): Advanced Spanish or permission of the instructor. Course offered Fall 2004. Instructor(s): *Kauffmann*

SPAN 426 THE SPANISH AVANT-GARDE (3)**The Spanish Avant-Garde**

This cross-genre, multimedia course examines the contributions of major figures (Picasso, Gris, Dalí, Diego, Alberti, Lorca, Buñuel, Gómez de la Serna) to the Spanish avant-garde in the 20th century. Prerequisite(s): Advanced Spanish or permission of the instructor. Course not offered 2004-2005 Instructor(s): *Pérez*

SPAN 428 CONTEMPORARY SPAN LITERATURE (3)**Contemporary Spanish Literature**

This course considers in detail specific problems, figures, movements, works, or literary genres. Examples: Torrente's trilogies; Poets of 1927; Social Conscience in Literature. Prerequisite(s): Advanced Spanish or permission of the instructor. Course not offered 2004-2005 Instructor(s): *Pérez*

SPAN 430 20TH-CENTURY SPANISH NOVEL (3)**20th-Century Spanish Novel**

This course examines the evolution of the Spanish novel as a work of art while exploring how cultural issues are incorporated into fictional worlds. Prerequisite(s): Advanced Spanish or permission of the instructor. Course offered fall 2004. Instructor(s): *Pérez*

(F) = Fall; (S) = Spring

SPAN 440 BILINGUALISM (3)**Bilingualism**

This course analyzes bilingualism from a variety of perspectives including cognitive, linguistic, and sociocultural viewpoints. Topics to be covered include conceptual representations of the lexicon, sentence parsing, levels of activation of bilingual modes, lexical, phonological, syntactic and pragmatic interference, code-switching, cultural identity, bilingual education, language and thought, etc. Also offered as LING 419 Course offered Spring 2005.

Instructor(s): *Salaberry*

SPAN 442 COGNITION AND L2 ACQUISITION (3)**Cognition and L2 Acquisition**

This course provides an in-depth analysis of general cognitive processes in second language development and cognitive based theories of second language acquisition. Some of the issues to be discussed in detail are perception, attention, memory, automaticity, restructuring, sentence processing, learnability theories, language and intelligence, critical periods for language acquisition, etc. Also offered as LING 420 Course not offered 2004-2005 Prerequisite:

Advanced Spanish or permission of the instructor. Instructor(s): *Salaberry*

SPAN 444 TENSE & ASPECT IN L2 ACQUIS (3)**Tense and Aspect in L2 Acquisition**

This course provides an introduction to (1) the morphosyntactic analysis of tense-aspect systems, (2) the development of inflectional morphology among first and second language learners, (3) the sequence and rate of aspectual contrasts, (4) the differences between natural and academic learning settings, and (5) the impact of pedagogical manipulations. Also offered as LING 422 Course not offered 2004-2005 Prerequisite(s): Advanced Spanish or permission of the instructor. Instructor(s): *Salaberry*

SPAN 450 CIVILIZATION & BARBARISM (3)**Civilization and Barbarism**

Since the Conquest, Latin America has been viewed by the European imagination as an "empty" continent, lacking in culture and history. This image of a "savage" continent has been interiorized by Latin America's own intellectuals. This course examines and deconstructs various manifestations of these ideological representations of Latin America. Course not offered 2004-2005 Prerequisite(s): Advanced Spanish or permission of the instructor.

Instructor(s): *González-Stephan*

SPAN 452 (UN) DISCIPLINED BODIES (3)**(UN) Disciplined Bodies**

This course studies nineteenth-century and twentieth-century texts that contributed to nation-building in Latin America by developing images of the model citizen, in his/her manners, physical appearance, behavior, health, and ethnic identity. These texts also offer representations of those citizens regarded as undesirable. Prerequisite(s): Advanced Spanish or permission of the instructor. Course not offered 2004-2005. Instructor(s): *González-Stephan*

SPAN 454 MACHO CULTURE IN LATIN AMERICA (3)**Macho Culture in Latin America**

This course examines the works of patriarchal ideology in a variety of cultural forms (literature, film, painting, photography). Studies the ways in which this ideology, which manifests itself in works by both men and women, defines male and female roles in Latin American culture. Prerequisite(s): Advanced Spanish or permission of the instructor. Course not offered 2004-2005 Instructor(s): *González-Stephan*

SPAN 456 LATIN AMERICAN WOMEN'S CULTURE (3)**Latin American Women's Culture**

Studies the cultural production (literary, artistic, cinematic) of intellectual women in Latin America. Examines the struggles for interpretive power in works by women from the colonial period to the present. Prerequisite(s): Advanced Spanish or permission of the instructor. Course not offered 2004-2005. Instructor(s): *González-Stephan*

SPAN 458 POETRY AND TESTIMONY (3)**Poetry and Testimony**

This course looks at what it means to try to represent unrepresentable experiences such as horror, death, and war. We will consider the hypothesis that testimony is always somehow poetical, and study a series of poetic texts that interrogate the limits of testimonial discourse. Prerequisite(s): Advanced Spanish or permission of the instructor. Course not offered 2004-2005. Instructor(s): *Jenckes*

SPAN 460 EUROPE AND LATIN AMERICA (3)**Europe and Latin America**

Definitions of Latin American literature and culture often take as their point of departure a consideration of the continent's relationship to Europe. This course examines works-essays, stories, and novels-that analyze and exemplify diverse aspects of this relationship. Prerequisite(s): Advanced Spanish or permission of the instructor. Course not offered 2004-2005. Instructor(s): *van Delden*

(*) = credit hours per semester

SPAN 462 MODERN SPANISH AMERICAN NOVEL (3)**Modern Spanish American Novel**

Works by Asturias, Carpenter, Rulfo, Onetti, Vargas Llosa, Cortázar, Fuentes, and others. Examines how Spanish American novelists from the 1940s onward appropriated the techniques of European modernist literature and infused them with new cultural content. Prerequisite(s): Advanced Spanish or permission of the instructor. Course offered Spring 2005. Instructor(s): *van Delden*

SPAN 464 LITERATURE AND THE STATE (3)**Literature and the State**

Is literature a mere extension and apparatus of state constitution and sovereignty, or is it a potentially subversive space where institutions of power can be disarticulated? If it is the latter, in what does such a disarticulation consist? Readings will include Borges, Rulfo, Roa Bastos, Arguedas, Piglia and Fo Vallejo. Prerequisite(s): Advanced Spanish or permission of the instructor. Course offered Spring 2005. Instructor(s): *Jenckes*

SPAN 468 OCTAVIO PAZ (3)**Octavio Paz**

Studies the literary and intellectual career of Nobel prize-winning Mexican poet and essayist Octavio Paz. Topics to be covered include: poetry and modernity; literature and national identity; art and the avant-garde; Paz's role in political debates in Mexico; the reception of his work at home and abroad. Prerequisite(s): Advanced Spanish or permission of the instructor. Course not offered 2004-2005 Instructor(s): *van Delden*

SPAN 470 LATIN AMERICAN CULTURAL THEORY (3)**Latin American Cultural Theory**

This course analyzes the main theoretical positions within contemporary cultural criticism. We will also study the reflection of these theories in fiction and film. Prerequisite(s): Advanced Spanish or permission of the instructor. Course offered Fall 2004. Instructor(s): *González-Stephan*

SPAN 490 INDEPENDENT STUDY (HOURS VARIABLE)**Independent Study**

Research in Hispanic literature, Hispanic linguistics, Hispanic culture and civilization. Open to qualified juniors and seniors interested in a topic not covered in other courses. Prerequisite(s): Advanced Spanish or permission of the instructor. Course offered both semesters. Instructor(s): *Staff*

SPAN 495 HONORS THESIS (3)**Honors Thesis**

Independent research projects by outstanding Spanish majors leading to a substantial honors essay, undertaken in close cooperation with a departmental faculty member, who must first approve the thesis proposal. Prerequisite(s): Advanced Spanish or permission of the instructor. Course offered both semesters. Instructor(s): *Staff*

SPAN 501 LITERARY THEORY/HISPANIC TEXTS (3)**Literary Theory/Hispanic Texts**

Graduate version of SPAN 401. Prerequisite(s): Advanced Spanish or permission of the instructor. Course not offered 2004-2005. Instructor(s): *Kauffmann*

SPAN 507 TCHNG COLLEGE SPANISH (PRACTC) (1)**Teaching College Spanish (Practicum)**

Study of pedagogical principles applicable to the teaching of Spanish. Includes practice teaching and performance reviews, design of pedagogical activities and peer observation. Course offered Spring 2005. Instructor(s): *Salaberry*

SPAN 510 THE PICARESQUE NOVEL (3)**The Picaresque Novel**

Graduate version of SPAN 410. Course not offered 2004-2005. Instructor(s): *Castañeda*

SPAN 512 DON QUIJOTE (3)**Don Quijote**

Graduate version of SPAN 412. Course offered Spring 2005. Instructor(s): *Castañeda*

SPAN 514 CALDERON'S THEATRE (3)**Calderon's Theatre**

Graduate version of SPAN 414. Course not offered 2004-2005. Instructor(s): *Castañeda*

SPAN 520 DISPUTED GENERATION OF 1898 (3)**The Disputed Generation of 1898**

Graduate version of SPAN 420. Course not offered 2004-2005. Instructor(s): *Kauffmann*

SPAN 522 UNAMUNO AND ORTEGA (3)**Unamuno and Ortega**

Graduate version of SPAN 422. Course offered Fall 2004. Instructor(s): *Kauffmann*

(F) = Fall; (S) = Spring

SPAN 526 THE SPANISH AVANT-GARDE (3)**The Spanish Avant-Garde**

Graduate version of SPAN 426. Course not offered 2004-2005. Instructor(s): *Pérez*

SPAN 528 CONTEMPORARY SPANISH LIT. (3)**Contemporary Spanish Literature**

Graduate version of SPAN 428. Course not offered 2004-2005. Instructor(s): *Pérez*

SPAN 530 20TH-CENTURY SPANISH NOVEL (3)**20th-Century Spanish Novel**

Graduate version of SPAN 430. Course offered Fall 2004. Instructor(s): *Pérez*

SPAN 535 THE MODERN SPANISH ESSAY (3)**The Modern Spanish Essay**

Graduate version of SPAN 435. Course not offered 2004-2005. Instructor(s): *Kauffmann*

SPAN 540 BILINGUALISM (3)**Bilingualism**

Graduate version of SPAN 440. Course offered Spring 2005. Instructor(s): *Salaberry*

SPAN 542 COGNITION & L2 ACQUISITION (3)**Cognition and L2 Acquisition**

Graduate version of SPAN 442. Course not offered 2004-2005. Instructor(s): *Salaberry*

SPAN 544 TENSE & ASPECT IN L2 ACQUIS. (3)**Tense and Aspect in L2 Acquisition**

Graduate version of SPAN 444. Course not offered 2004-2005. Instructor(s): *Salaberry*

SPAN 550 CIVILIZATION & BARBARISM (3)**Civilization and Barbarism**

Graduate version of SPAN 450. Course not offered 2004-2005. Instructor(s): *González-Stephan*

SPAN 552 (UN) DISCIPLINED BODIES (3)**(UN) Disciplined Bodies**

Graduate version of SPAN 452. Course not offered 2004-2005. Instructor(s): *González-Stephan*

SPAN 554 MACHO CULTURE IN LATIN AMERICA (3)**Macho Culture in Latin America**

Graduate version of SPAN 454. Course not offered 2004-2005. Instructor(s): *González-Stephan*

SPAN 556 LATIN AMER WOMEN'S CULTURE (3)**Latin American Women's Culture**

Graduate version of SPAN 456. Course not offered 2004-2005. Instructor(s): *González-Stephan*

SPAN 558 POETRY AND TESTIMONY (3)**Poetry and Testimony**

Graduate version of SPAN 458. Course not offered 2004-2005. Instructor(s): *Jenckes*

SPAN 560 EUROPE AND LATIN AMERICA (3)**Europe and Latin America**

Graduate version of SPAN 460. Course not offered 2004-2005. Instructor(s): *van Delden*

SPAN 562 MODERN SPANISH AMERICAN NOVEL (3)**Modern Spanish American Novel**

Graduate version of SPAN 462. Course offered Spring 2005. Instructor(s): *van Delden*

SPAN 564 LITERATURE AND THE STATE (3)**Literature and the State**

Graduate level of SPAN 464. Course offered Spring 2005. Instructor(s): *Jenckes*

SPAN 568 OCTAVIO PAZ (3)**Octavio Paz**

Graduate version of SPAN 468. Course not offered 2004-2005. Instructor(s): *van Delden*

SPAN 570 LATIN AMERICAN CULTURAL THEORY (3)**Latin American Cultural Theory**

Graduate version of SPAN 470. Course offered Fall 2004. Instructor(s): *González-Stephan*

(#) = credit hours per semester

SPAN 591 INDEPENDENT STUDY (HOURS VARIABLE)**Independent Study**

Research in Hispanic literature, Hispanic linguistics, and Hispanic culture and civilization. Open to graduate students interested in a topic not covered in other courses. Prerequisite(s): permission of department. Course offered Fall 2004. Instructor(s): *Staff*

SPAN 592 INDEPENDENT STUDY (HOURS VARIABLE)**Independent Study**

Research in Hispanic literature, Hispanic linguistics and Hispanic culture and civilization. Open to graduate students interested in a topic not covered in other courses. Prerequisite(s): Permission of department. Course offered Spring 2005. Instructor(s): *Staff*

SPAN 700 SUMMER GRADUATE RESEARCH (HOURS VARIABLE)**Summer Graduate Research**

Research leading to candidacy. Instructor(s): *Staff*

SPAN 701 RESEARCH LEADING TO CANDIDACY (HOURS VARIABLE)**Fall Research Leading to Candidacy**

Topics in Spanish and Latin American literary theory and Spanish Linguistics. To be taken after a student has completed departmental course requirements for the Masters, and before being admitted to candidacy. Course offered Fall 2004. Instructor(s): *Staff*

SPAN 702 RESEARCH LEADING TO CANDIDACY (HOURS VARIABLE)**Spring Research Leading to Candidacy**

Topics in Spanish and Latin American Literary theory and Spanish Linguistics. To be taken after a student has completed departmental course requirements for the Master's degree, but before being admitted to candidacy. Course offered Spring 2005. Instructor(s): *Staff*

SPAN 800 SUMMER THESIS RESEARCH (HOURS VARIABLE)**Thesis Research**

Research and thesis. Taken after a student has been approved for candidacy. Can be repeated for credit.

SPAN 801 FALL RESEARCH AND THESIS (HOURS VARIABLE)**Fall Research and Thesis**

Research for the M.A. thesis. Taken after approval for candidacy. Can be repeated for credit. Instructor(s): *Staff*

SPAN 802 SPRING RESEARCH AND THESIS (HOURS VARIABLE)**Spring Research for MA Thesis**

Taken after approval for candidacy. Can be repeated for credit. Instructor(s): *Staff*

STAT (STATISTICS)**School of Engineering/Statistics****STAT 100 DATA, MODELS, AND REALITY (3)****Data, Models, and Reality: An Introduction to the Scientific Method**

The formation of models of reality and the ways models are tested by their analysis in the light of data are considered. We cover a variety of examples from antiquity to the present time. Only offered in the Spring.

STAT 280 ELEMENTARY APPLIED STATISTICS (4)**Elementary Applied Statistics**

A noncalculus introduction to statistical methods with emphasis on techniques. Includes computer laboratory.

STAT 300 MODEL BUILDING (3)**Model Building**

Examples to illustrate mathematical formulation (modeling) of scientific problems, their solution and interpretation. Prerequisite(s): MATH 211 or consent of instructor.

STAT 305 INTRO TO STAT FOR BIOSCIENCES (4)**Introduction to Statistics for Biosciences**

An introduction to statistics for Biosciences with emphasis on statistical models and data analysis techniques. Computer-assisted data analysis, including biological examples, is explored in laboratory sessions. Prerequisite(s): MATH 101, 102.

STAT 310 PROBABILITY & STATISTICS (3)**Probability and Statistics**

Probability theory and the central concepts and methods of statistics. Also offered as Econ 382. Prerequisite(s): MATH 102; MATH 212 is recommended.

(F) = Fall; (S) = Spring

STAT 331 APPLIED PROBABILITY (3)**Applied Probability**

Elementary probability theory, conditional probability, independence, discrete and continuous random variables, expectation, standard discrete and continuous distributions, transform techniques, central limit theorems, estimation, and correlation. Selected topics such as the Poisson process, Markov chains, and statistical techniques. Illustrations from engineering. Also offered as ELEC 331. Prerequisite(s): MATH 212.

STAT 339 STATISTICAL METHODS-PSYCHOLOGY (4)**Statistical Methods-Psychology**

Also offered as PSYC 339.

STAT 385 METHODS FOR DATA ANALYSIS (4)**Methods for Data Analysis and System Optimization**

The three general topic areas covered in this methodology oriented course are statistical methods including regression, sampling, and experimental design; simulation based methods in statistic, queuing and inventory problems; and an introduction to optimization methods. Excel will serve as the basic computing software. Prerequisite(s): STAT 280 or 305 or equivalent. Offered Spring semester.

STAT 400 ECONOMETRICS (3)**Econometrics**

Also offered as ECON 400.

STAT 410 INTRO REGRESSN & STAT COMPUT'G (3)**Introduction to Regression and Statistical Computing**

A survey of statistical methods with emphasis on computing and computing environments, focusing on applied regression and experimental design. Prerequisite(s): STAT 310 or consent of instructor.

STAT 421 COMPUTATION FINANCE II (3)**Computational Finance II: Time Series Analysis**

Applied time series modeling and forecasting, with applications to financial markets. Prerequisite(s): STAT 310 or permission of instructor. Offered Spring semester.

STAT 422 BAYESIAN DATA ANALYSIS (3)**Bayesian Data Analysis**

This course will cover Bayesian methods for analyzing data. The emphasis will be on applied data analysis rather than theoretical development. We will consider a variety of models, including linear regression, hierarchical models, and models for categorical data. Prerequisite(s): STAT 410 Offered Fall semester.

STAT 423 PROB BIOINFORMATICS & GENETICS (3)**Probability in Bioinformatics and Genetics**

Advances in computers and biotechnology have had an immense impact on the biomedical fields. Correspondingly, new areas of probability and statistics are being developed specifically to meet the needs of this area. This course describes some of the main statistical applications in the field, including gene finding and evolutionary inference. Prerequisite(s): STAT 305 or 310 or 331, or permission of instructor. Offered Spring semester.

STAT 431 OVERVIEW MATH STATS (3)**Overview of Mathematical Statistics**

Topics include random variables, distributions, transformations, moment generating functions, common families of distributions, independence, sampling distributions, the basics of estimation theory, hypothesis testing and Bayesian inference. Prerequisite(s): STAT 310.

STAT 450 STATISTICAL MODELING (2)**Practicum in Statistical Modeling**

This course introduces current theoretical and applied problems encountered in statistical practice. The content changes each semester in response to contemporary topics Prerequisite(s): STAT 310 or 305 and one of 410, 421, 422. Offered Spring semester.

STAT 453 BIostat, STAT, GENETICS & BIOINFO (3)**Biostatistics, Statistical Genetics, and Bioinformatics**

An overview of methodologies used in Biostatistics, Statistica Genetics I, and Bioinformatics. Prerequisite(s): STAT 410 or permission of instructor. Offered Spring semester.

STAT 486 COMP FIN I: MARKET MODELS (3)**Computational Finance I: Market Models**

This course takes the classical efficient market models and superimposes upon it models for other stochastic phenomena not generally accounted for in efficient market theory, showing how risk is lessened by portfolios and other mechanisms. The course uses computer simulations as an alternative to closed form solutions. Prerequisite(s): STAT 310 or near equivalent.

(*) = credit hours per semester

STAT 490 INDEPENDENT STUDY (HOURS VARIABLE)**Independent Study****STAT 491 INDEPENDENT STUDY (HOURS VARIABLE)****Independent Study**

Offered Spring semester.

STAT 495 INTRODUCTION TO STATISTICS (3)**Introduction to Statistics**

Also offered as POLI 495.

STAT 499 MATHEMATICAL SCIENCES VIGRE (HOURS VARIABLE)**Mathematic Sciences VIGRE Seminar**

This course prepares a student for research in the mathematical sciences on a specific topic. Each section is dedicated to a different topic. Current topics include bioinformatics, biomathematics and computational finance. The topics change each semester. Also offered as CAAM 499 and MATH 499.

STAT 503 TOPICS IN METH & DATA ANALYSIS (3)**Topics In Meth and Data Analysis**

See POLI 503 schedule.

STAT 509 ADV PSYCHOLOGICAL STATISTICS I (3)**Advanced Psychological Statistics I**

Also offered as PSYC 502.

STAT 510 ADV PSYCHOLOGICAL STATS II (3)**Advanced Psychological Statistics II**

See PSYC 503 for schedule.

STAT 532 MATHEMATICAL STATISTICS I (3)**Mathematical Statistics I**

The first semester in a two-semester course in mathematical statistics: random variables, distributions, small and large sample theorems of hypothesis testing, point estimation, and confidence intervals; topics such as exponential families, univariate and multivariate linear models, and nonparametric inference will also be discussed. Required for graduate students in statistics. Prerequisite(s): STAT 581 and STAT 431 or permission of instructor Offered Spring semester.

STAT 533 ADVANCED STATISTICAL INFERENCE (3)**Advanced Statistical Inference**

A continuation of STAT 532. Required for Ph.D. students in statistics. Prerequisites: STAT 582 and STAT 532.

STAT 540 STATISTICAL MODELING (3)**Practicum in Statistical Modeling**

This course introduces current theoretical and applied problems encountered in statistical practice. The content changes each semester in response to contemporary topics. Designed for graduate students in statistics. Offered Spring semester.

STAT 541 MULTIVARIATE ANALYSIS (3)**Multivariate Analysis**

Study of multivariate normal theory; principal components, factor analysis, discrimination, and hypothesis testing. Offered Fall semester.

STAT 542 SIMULATION (3)**Simulation**

Topics in stochastic simulation including: random number generators; Monte Carlo methods, resampling methods, Markov Chain Monte Carlo, importance sampling and simulation based estimation for stochastic processes. Offered Spring semester.

STAT 546 EXPERIMENTS & SAMPLING THEORY (3)**Design and Analysis of Experiments and Sampling Theory**

Not offered 2004–2005.

STAT 547 SURVIVAL ANALYSIS (3)**Survival Analysis**

Not offered 2004–2005.

(F) = Fall; (S) = Spring

STAT 551 ADVANCED TOPICS IN TIME SERIES (3)**Advanced Topics in Time Series**

The course will cover current topics in both modeling and forecasting discrete and continuous time series. A brief coverage will also be given to spatial and spatial-temporal processes. Emphasis will be placed on applications in the area of computational finance.

STAT 552 APPLIED STOCHASTIC PROCESSES (3)**Applied Stochastic Processes**

This course covers the theory of some of the most frequently used stochastic processes in application; discrete and continuous time, Markov chains, Poisson and renewal processes, and Brownian motion.

STAT 553 BIOSTATISTICS (3)**Biostatistics**

Same as Stat 453 with advanced problem sets. Prerequisite(s): STAT 410 or permission of instructor. Offered Spring semester.

STAT 555 STOCHASTIC MODELS IN GENETICS (3)**Stochastic Models in Genetics**

Not offered 2004-2005.

STAT 557 BAYESIAN FOUNDATIONS (3)**Bayesian Foundations of Statistical Inference**

The basic theory and philosophy of the Bayesian approach to Statistics will be presented along with some comparison with other approaches. Much of the course will be spent on specific applications with an emphasis on recent developments in computational methods. Not offered 2004-2005.

STAT 581 MATHEMATICAL PROBABILITY I (3)**Mathematical Probability I**

Measure-theoretic foundations of probability. Open to qualified undergraduates. Also offered as CAAM 581.

STAT 582 MATHEMATICAL PROBABILITY II (3)**Mathematical Probability II**

Continuation of Stat 581. Prerequisite(s): STAT 581. Offered Spring semester.

STAT 583 INTRO RANDOM PROCESSES & APPL (3)**Introduction to Random Processes and Applications**

Also offered as ELEC 533.

STAT 586 WAVELET AND SPECTRAL ANALYSIS (3)**Wavelet and Spectral Analysis**

See ELEC 532.

STAT 590 INDEPENDENT STUDY (HOURS VARIABLE)**Independent Study****STAT 591 INDEPENDENT STUDY (HOURS VARIABLE)****Independent Study****STAT 600 GRADUATE SEMINAR IN STATISTICS (HOURS VARIABLE)****Graduate Seminar in Statistics****STAT 604 ADVANCED ECONOMIC STATISTICS (5)****Advanced Economic Statistics**

Also offered as ECON 504.

STAT 610 ECONOMETRICS I (5)**Econometrics I**

See ECON 510 for schedule.

STAT 611 ECONOMETRICS II (5)**Econometrics II**

See ECON 511.

STAT 620 SPECIAL TOPICS (3)**Special Topics**

STAT 620 through STAT 689 are seminars on advanced topics in Statistics.

(#) = credit hours per semester

STAT 640 DATA MINING & STAT LEARNING (3)**Data Mining and Statistical Learning**

Survey of ideas, methods, and tools for analyzing large data sets; techniques for searching for unexpected relationships in data. Topics from supervised and unsupervised learning include regression, discriminant analysis, kernels, model selection, bootstrapping, trees, MARS, boosting, classification, clustering, neural networks, SVM, association rules, principal curves, multidimensional scaling, and projection pursuit.

STAT 655 STAT METH IN BIOINFORMATICS (3)**Statistical Methods in Bioinformatics**

Topics will include but are not limited to micro arrays, molecular evolution and stochastic processes for genomics.

STAT 681 TOPICS IN BIOMETRY (3)**Topics in Biometry****STAT 685 QUANT ENVIR DECISION MAKING (2)****Quantitative Environmental Decision Making**

A project oriented computer intensive course focusing on statistical and mathematical solutions and investigations for the purpose of environmental decisions. This course is required for EADM students. Prerequisite(s): STAT 305 Co-requisite(s): STAT 385 or 410 or permission of instructor. Offered Spring semester.

STAT 689 SPECIAL TOPICS (3)**Special Topics**

Stat 620 through STAT 689 are seminars on advanced topics in Statistics.

STAT 699 MATHEMATICAL SCIENCES VIGRE (HOURS VARIABLE)**Mathematical Sciences VIGRE Seminar**

This course prepares a student for research in the mathematical sciences on a specific topic. Each section is dedicated to a different topic. Current topics include bioinformatics, biomathematics and computational finance. The topics change each semester. Also offered as CAAM 699 and MATH 699.

STAT 800 THESIS (HOURS VARIABLE)**Thesis****THEA (THEATRE)****School of Humanities/English****THEA 100 THEATRE TECHNOLOGY (3)****Theatre Technology: Scenic, Lighting, and Sound**

Introduction to materials, tools, and standard theatre production techniques. Theory and practice of lighting equipment and controls, scenic building and painting techniques, creation of props, sound support requirements, and running crew during performance. Lab hours required. Enrollment limited. Instructor(s): *Staff*

THEA 101 THEA TECH: COSTUME CONSTRUCTION (3)**Theatre Technology: Costume Construction**

Introduction to the materials, tools, and standard techniques of costume/clothing construction. Lab hours required. Enrollment limited to 8.

THEA 200 INTRODUCTION TO DESIGN (3)**Introduction to Design**

Examination of the basic principles of scenic, lighting, and costume design with emphasis on reading and analyzing a variety of plays in different styles, collaboration with directors and other theatre artists, research, written and visual presentation of ideas including concept statements, sketching, technical drawings, and/or models. Enrollment limited to 12.

THEA 201 HISTORY OF THEATRE (3)**History of Theatre**

Chronological survey of theatre as a sociocultural institution from its origin to the 20th century with a primary emphasis on Western theatre in America and Europe and a secondary emphasis on Asia encompassing the characteristic practices of theatrical architecture, playwriting, texts, directing, acting, technical production aspects, audiences and criticism.

THEA 202 STAGECRAFT III (3)**Stagecraft III**

Advanced costume/clothing construction.

(F) = Fall; (S) = Spring

THEA 300 INTRODUCTION TO THEATRE DESIGN (3)**Introduction to Theatre Design**

Introduction to the theory and practice of theatre design through exploration of the principles and elements of design as they apply to scenery, lighting, and costumes with an emphasis on text analysis and research. Required prior to taking other design courses. Instructor(s): *Staff*

THEA 301 ACTING I (3)**Acting I**

Introduction to the fundamentals of acting through the exploration of actor training techniques based on the theories of Stanislavsky, Meisner, Hagen, and Mamet emphasizing the actor's primary tools - voice, body, emotional life, and imagination. Instructor(s): *Rigdon*

THEA 302 ACTING II (3)**Acting II**

Text analysis and scene study for the actor with a particular emphasis on a thorough investigation of given circumstances and dramatic action. Enrollment limited to 12. Prerequisite: THEA 301 or permission.

THEA 303 INTRODUCTION TO THEATRE (3)**Introduction to Theatre**

A survey course of the art and theory of the theatre through an examination of dramatic literature from the Greeks through the modern era. The course will also explore the craft of the theatre as it is practiced today. Also offered as ENGL 390. Instructor(s): *Rigdon*

THEA 304 COSTUME DESIGN (3)**Costume Design**

Advanced examination of the principles of costume design through the analysis of character and relationships. Students will read and analyze a variety of plays in different periods and styles and then, based on text analysis and research, complete and present design projects using different rendering techniques. The role of the costume designer in collaboration with directors, actors, and other designers will also be explored. Prerequisite(s): THEA 300. Enrollment limited to 12. Instructor(s): *Staff*

THEA 305 LIGHTING DESIGN (3)**Lighting Design**

Study of the role that lighting plays in a production and the lighting designer's place as an artist in the collaboration process with emphasis on the practical application of the controllable properties of light as they apply to theatre. Students will be required to complete a variety of projects including unrealized designs based on reading and analyzing plays, light labs responding to music, and collaboration with Rice Dance Theatre on the Spring production. Enrollment limited to 12 Prerequisite(s): THEA 300 Instructor(s): *Staff*

THEA 306 SCENIC DESIGN (3)**Scenic Design**

Advanced examination of the principles of scenic design including research, rendering, technical drawing, model construction, text analysis and the role of the scenic designer in collaboration with directors, actors, and other designers. Students will read and analyze a variety of plays in different periods and styles, and then, based on text analysis and research, complete and present design projects. Prerequisite(s): THEA 300.

THEA 307 HIST FOR THEATER DESIGNERS (3)**History of Architecture, Interiors, and Clothing for Theatre Designers**

Survey of the major period styles of buildings, homes, furnishings, and clothing from ancient Egypt through the 20th century including a critical analysis of the interdependent nature of the evolution of design and the relationship to the cultures in which they were created.

THEA 310 ACTING III: THE SPOKEN TEXT (3)**Acting III: The Spoken Text**

An exploration of language as one of the actor's primary means of communication and expression. The student will analyze, rehearse and perform sonnets, soliloquies and scenes from the work of William Shakespeare. Enrollment is limited to 12. Prerequisite(s): THEA 301 or permission.

THEA 311 ACTING IV (3)**Acting IV**

A scene of study course designed to expose the advanced acting student to the challenges of tackling the master playwrights. Students will rehearse and perform scenes from the works of the Greeks, Ibsen, O'Neill, and others. Prerequisite(s): THEA 301, 302, and 310 or permission.

(*) = credit hours per semester

THEA 312 DIRECTING I (3)**Directing I**

An introductory course exploring the tools and craft of the stage director. Students will learn how to analyze dramatic text and will gain a fundamental knowledge of the director's basic skills, including composition, picturization, movement, rhythm, and pantomimic dramatization. Enrollment limited to 10. Prerequisites(s): THEA 303 or permission.

THEA 321 HISTORY OF THEATRE (3)**History of Theatre**

Chronological survey and comprehensive exploration of theatre as a socio-cultural institution from a historical perspective. Students will research the characteristic practices of theatre and the philosophical, cultural, political, and social forces that changed those practices from its origin as ancient tribal ritual to the 21st century multimedia production.

THEA 329 SPEC PROB:TECH, PRODUCTION (HOURS VARIABLE)**Special Problems: Technical, Production**

Independent study.

THEA 330 CONTEMP DRAMATIC LITERATURE (3)**Contemporary Dramatic Literature**

In this course we will examine contemporary American plays that have had a significant impact on theatrical form or that are highly reflective of contemporary society. Playwrights whose work will be studied will include Mamet, Guare, Lucas, Wilson and many others. Also offered as ENGL 392.

THEA 431 SPEC PROB:HISTORY, LITERATURE (3)**Special Problems: History, Literature**

Independent study.

THEA 432 SPEC PROB:DESIGN, DIRECTING (HOURS VARIABLE)**Special Problems: Design, Directing**

Independent study.

THEA 435 SPEC PROB:ADVANCED TOPICS (3)**Special Problems: Advanced Topics**

Independent study.

TIBT (TIBETAN)**School of Humanities/Religious Studies****TIBT 132 TIBETAN LANGUAGES & CULTURE I (3)****Tibetan Languages and Culture I**

Readings in Tibetan Bon and Buddhist Religious texts. Also offered as RELI 132. Not offered in 2004-2005. Instructor(s): *Gray, Klein*

TIBT 133 TIBETAN LANGUAGE & CULTURE II (3)**Tibetan Language and Culture II**

Continuation of first semester. We begin by learning the Tibetan alphabet, pronunciation, and then start reading Buddhist texts. Permission of instructor required. Also offered as RELI 133. Not offered in 2004-2005. Instructor(s): *Gray, Klein*

TIBT 324 ADV. TIBETAN LANG. & CULTURE I (3)**Advanced Tibetan Language and Culture I**

Building upon the foundation of RELI 132 & 133, this course further develops language skills through reading and engagement with a wider range of Tibetan religious and historical literature. This course also explores the history and special features of Tibetan cultures, and encourages conversational ability in modern Tibetan. Also offered as RELI 331. Not offered in 2004-2005. Instructor(s): *Gray, Klein*

TIBT 332 ADV. TIBETAN LANG & CULTURE II (HOURS VARIABLE)**Advanced Tibetan Language and Culture II**

Continuation of TIBT 324 & RELI 331 Instructor(s): *Staff*

UNIV (UNIVERSITY COURSES)**No College Designated/University Courses****UNIV 111 THE SUSTAINABLE ENVIRONMENT (3)****The Sustainable Environment**

Open only to freshman. Enrollment limited to 15. Also offered as ENST 101.

(F) = Fall; (S) = Spring

UNIV 112 WORD & IMAGE: SLOWDOWN & LOOK CLOSER (3)**Word and Image: Slowing Down and Looking Closely**

Open only to freshman. Enrollment limited to 15.

UNIV 113 TECH DISASTERS & CATASTROPHIC (3)**Technological Disasters and Catastrophes**

This fall semester seminar is open to all students, all majors and is taught by Rice alum and entrepreneur Kraetli Epperson of R7 Solutions. The core curriculum is a series of panel discussions with entrepreneurs. Students who have some professional work experience- particularly those with some exposure to an entrepreneurial organization- will find this course most satisfying.

UNIV 114 WAYS THE WORLD IS WEIRD (3)**Ways the World Is Weird: Philosophical Lessons of Modern Physics**

The "philosophy of physics" may sound abstruse or even intimidatingly technical, but the path we will investigate is one already well-trodden by all of us. This course is not so much in physics as about physics: about how the world astonishingly differs from our expectations. These expectations seem trivial, obvious and beyond dispute. Consider: all events are caused, time flows forwards, the past is fixed, the future is open, the world is a mechanism made of autonomous bits existing independently of human thought. In a non-technical yet scientifically rigorous, philosophically motivated, writing intense context, drawing on accessible essays from philosophers, scientists and popular authors, we will come to see that contemporary physics gives us food reason to question every one of these commonplace ideas.

UNIV 115 SACRED FRANCE: FROM RENAISSANCE (3)**The Sacred in France: From the Renaissance to the Present**

Open only to freshman. Enrollment limited to 15.

UNIV 116 ISSUES IN ENERGY (3)**Issues in Energy**

Energy lies at the heart of this century's humanitarian problems: energy is central to improved quality of life, economic, social, geopolitical, and environmental development. Prospects of forward looking and long-term solutions to abundant, cheap, efficient, safe and clean energy will require major scientific and technological leaps. Using critical analysis and creative thinking, students will be asked to address real world energy problems using chemistry, physics, and engineering concepts as basis of their reflection. Moreover, it will examine the social and economical nature of the energy problems in the context of sustainable environment. The course will emphasize active participation of students to address ill-structured problems which mirror real-world problems in energy. Enrollment limited to 20.

UNIV 117 THE EVOLUTION WARS (3)**The Evolution Wars**

This course will examine the concept of evolution from scientific, historical, cultural, social, and religious viewpoints. We will enter into these debates with the understanding of evolution not simply as a scientific paradigm, but also as a central, world-shaping idea with profound implications for social organization, theological discourse, and cultural self-awareness. Open only to Freshmen. Enrollment limited to 15.

UNIV 118 CLASSIC OF CHANGES IN ASIAN (3)**The Classic of Changes in Asian and World Culture**

Over the past two millennia or so, the Yijing (I-ching; Classic of Changes) has been, with the notable exception of the Bible, the most widely read and extensively analyzed book in all of world literature. How do we account for its transcultural spread and enduring influence? What aspects of it can it be compared to other "classic" works as a document of truly global significance?

UNIV 119 ADV BIOTECH:SCIENCE, FACT (3)**Advances in Biotechnology: Science Fact and Fiction**

Recent progress in biotechnology and bioengineering is dramatically changing our lives. This course will discuss examples from science fiction literature and movies, such as cloning, tissue engineering, and bionanotechnology. We will examine how these new biosciences really work and what societal impact we might expect to see from them in the future. As a final project in this course, students will write a short story featuring a biotechnology. Open only to Freshmen. Enrollment limited to 15.

UNIV 120 PHYSICS AND METAPHYSICS OF TIME (3)**The Physics and Metaphysics of Time Travel**

Time travel has long been a popular notion of science fiction. We will try to understand some of the various things "time travel" might be taken to mean, and we will discuss and write about a variety of arguments concerning the possibility of time travel. We also touch on issues of causation, explanation, physical laws, personal identity, and other matters of mutual interest to physicists and philosophers. Open only to Freshmen.

(#) = credit hours per semester

UNIV 121 THE IDEA OF THE MODERN (3)**The Idea of the Modern**

This seminar will examine some of the ideas that underlie and constitute the major classification concept of the past century, the modern. We will consider such topics as the triumph of secularism, critique of foundationalism, break with representation along with other experiments in the arts, existentialism and the absurd, changing notions of the family and of human sexuality, and the view from the margins. Open to freshman only. Enrollment limited to 15.

UNIV 200 INTRO ENVIRON: ENVIRON (3)**Introduction to the Environment: Environmental History and Environmental Literature**

This course is intended as an introduction to environmental studies from all divisions of the campus. The course focuses on attitudes and values relating to the environment as represented in environmental history and environmental literature. Also offered as ENST 201.

UNIV 201 CENTURY SCHOLARS PROGRAM (1)**Century Scholars Program**

No description.

UNIV 210 TECH, CULTURE, & COGNITION (3)**Technology, Culture, and Cognition**

An examination of the history of information technologies perceived as media transfers from oral to written, to print, and to electronic communications, and as multiple media interfaces. In that context, the course explores the categorization and organization of knowledge. The construction of self, national identities, education, authority, censorship, etc. Also offered as HIST 210, LING 210, and ANTH 210.

UNIV 300 INTRO ENVIRON:ENVIRON (3)**Introduction to the Environment: Environmental History and Environmental Literature**

This course is intended as an introduction to environmental studies from all divisions of the campus. The course focuses on attitudes and values relating to the environment as represented in environmental history and environmental literature. Also offered as ENST 301.

UNIV 302COMM, COGNITION, & CULTURE (3)**Communication, Cognition, and Culture**

A team-taught course that addresses the nature of information technologies and their influence on culture. It focuses on orality, the manuscript culture, the print revolution and the electronic communication which culminates in high-speed powers of computation and simulation, and the creation of global information structures. The influence of these modes of communication on the following issues will be explored: imaging and visualization, memory, self and community, censorship and social control, authority, science and medicine, education, nationalism and ethnicity, and virtual reality. This is strictly a discussion course.

UNIV 303 ENVIRON ISSUES:RICE IN FUTURE (3)**Environmental Issues: Rice into the Future**

This course addresses science, technology, and policy elements of environmental issues. Students use the campus and local community as a laboratory in which to do projects to reduce environmental impacts, enhance sustainability, or resolve environmental problems. Also offered as ENST 302.

UNIV 309 CREATING & MANAGING CHANGE (3)**Creating and Managing Change**

UNIV 309 offers an opportunity to understand and grow the capacities associated with leadership. This class combines theory and practice with an emphasis on learning how to build and sustain a powerful team. This class is required to apply for a Leadership Rice Summer Mentorship or the Leadership Certificate. Enrollment limited to 65. Instructor(s): *Lieberman*

UNIV 310 LEADERSHIP RICE SEMINAR (HOURS VARIABLE)**Leadership Rice Seminar**

This series of seminars builds on UNIV 309 and explores leadership development in more depth. Students should come away with a better sense of how to impact their communities and lead an authentic life. Open only to students accepted into the Leadership Certificate program. Prerequisite(s): UNIV 309, permission of instructor. Instructor(s): *Lieberman*

UNIV 311 CREATIVITY SEMINAR (1)**Creativity Seminar**

The purpose of this seminar is to deepen our understanding of the creative process and to explore ways in which individuals can mine their own creative capacity. In addition to weekly assignments, no more than one hour, participants will design a creative project that grows from one's own interests and develop it during the semester. Instructor(s): *Lieberman*

(F) = Fall; (S) = Spring

UNIV 313 ENTREPRENEURIAL LEADERSHIP (2)**Entrepreneurial Leadership**

This fall semester seminar, for all majors, is taught by Rice alum and entrepreneur Kraetli Epperson of R7 Solutions. The class includes a series of panel discussions with Houston-area entrepreneurs and a group project to develop a business plan. Students who have some professional work experience- particularly with some exposure to an entrepreneurial organization- will find this course most satisfying. Instructor(s): *Lieberman*

UNIV 314 GENETICS (3)**Genetics: Biological, Culture-Historical, and Ethical Perspectives**

The course uses an interdisciplinary perspective to examine the claims and counter-claims made regarding genetics and new technologies for identifying and manipulating genetic material. The course will cover biological basics of genes, DNA, and sequencing techniques; cultural and historical aspects to genetics, including essentialism and eugenics past and present; ethical issues arising from new genetic technologies; and policy issues. Not open to Freshmen. Also offered as ANTH 314 and BIOS 307.

WGST (WOMEN & GENDER STUDIES)**School of Humanities/Women and Gender Studies****WGST 101 INTRO WOMEN & GENDER (3)****Introduction to the Study of Women and Gender**

An introductory survey of issues in the study of women, including women's social, political, and legal status in the United States and around the world; feminist perspectives on sexuality, gender, family, and reproduction; and the implications of these perspectives for social and critical theory. Instructor(s): *Staff*

WGST 201 INTR LESBIAN, GAY, BISEX&TRAN (3)**Introduction to Lesbian, Gay, Bisexual, and Transgender Studies**

Introduction to Lesbian, Gay, Bisexual, and Transgender Studies. This course is an introduction to the interdisciplinary examination of sexual desires, sexual orientations, and the concept of sexuality generally, with a particular focus on the construction of lesbian, gay, bisexual, and transgender identities. The course will look specifically at how these identities interact with other human phenomena such as government, family, popular culture, scientific inquiry, and especially gender. In exploring sexual diversity, we will highlight the complexity and variability of sexualities both across different historical periods, and in relation to identities of race, class, ethnicity, and nation.

Instructor(s): *Huffer and Kripal*

WGST 205 LANGUAGE & SOCIETY (3)**Language and Society**

This course treats language as a social phenomenon to show how language, personal identity and institutions of social control inter-relate. The course focuses on linguistic interaction in daily life and how gender, ethnic, class, activity and geographic variation affect language use. Also offered as LING 205. Instructor(s): *Niedzielski*

WGST 220 GENDERED PERSPECTIVES (3)**Gendered Perspectives on the Law**

This course explores the ways in which law genders and is gendered. Using academic texts, popular media, and legal cases this course provides an introduction to feminist legal theory, critical race feminism, and feminist sociolegal studies. Looking at law from both local and global perspectives, we critically engage what sociolegal scholars have called "the common place of law" and its relation to larger structural forces. While we focus on law in the United States, we also examine gendered perspectives on the law in international and transitional contexts.

Instructor(s): *Staff*

WGST 225 WOMEN IN GREECE AND ROME (3)**Women in Greece and Rome**

Survey of the depiction of women in Greek and Roman mythology, literature, and art. Includes a study of the lives of Greek and Roman women as evidenced by archaeological as well as literary materials. Also offered as CLAS 225. Instructor(s): *Wallace*

WGST 234 US WOMEN HISTORY I (3)**U.S. Women's History I: Colonial Beginnings to the Civil War**

Survey of American women's history examines the lives of elite, working, black, Indian, and white women, and traces changes in women's legal, political, and economic status from the mid-17th century through the Civil War. Topics include slavery, suffrage, sexuality, and feminism. Also offered as HIST 241. Instructor(s): *Sneider*

WGST 235 US WOMEN HISTORY II (3)**U.S. Women's History: Civil War to the Present**

Survey of American women's history examines the lives of black, Asian American, Chicano, Native American, and white women, and traces changes in women's legal, political, and economic status from the Civil War to the present. Topics include suffrage, anti-lynching, welfare, birth control, and the modern civil rights and feminist movements. Also offered as HIST 242. Instructor(s): *Sneider*

(#) = credit hours per semester

WGST 240 GENDER & POLITICIZED RELIGION (3)**Gender and Politicized Religion**

This course examines the emergence of religion-based politics in various Asian countries-particularly Hindu and Muslim-focusing on the women participants in these movements as well as the movements' concern with gender roles in society. We will investigate, for instance, the extent to which women participants have been willing or able to reshape the central ideas of such movements. Also offered as ASIA 240. Instructor(s): *Shehabuddin*

WGST 250 POLITICAL ECONOMY OF GENDER (3)**International Political Economy of Gender**

This course explores the relationship between women's lives, gender ideologies, and international and domestic politics and economics. We will examine women's experiences with and resistance to the sexual division of labor, imperialism, capitalism, consumerism, domestic service, war, slavery, and migration across different geographical and historical contexts. Also offered as POLI 250. Instructor(s): *Shehabuddin*

WGST 283 WOMEN IN MODERN ISLAMIC WORLD (3)**Women in the Modern Islamic World**

This course introduces students to the history of women in the Islamic world. Topics include women and law, family relations, work, women as political actors in Islamic history, the harem as a social and political institution, women as property owners, veiling, and modern feminist movements throughout the Islamic world. Also offered as HIST 283. Instructor(s): *Sanders*

WGST 300 MEDIEVAL WOMEN WRITERS (3)**Medieval Women Writers**

This course examines the significant medieval European women authors from the 10th-17th centuries, from Italy and Germany to France, England, Austria, and Spain. Using various techniques and media- feminist and gender theory, reader-response theory, staging and performance, films, recordings, slides, journal entries and personal criticism, etc. to access their work, we will combine close readings with a focus on intertextuality. All works will be read in translation. Also offered as ENGL 311 and MDST 300. Instructor(s): *Chance*

WGST 301 ARTHURIAN LITERATURE (3)**Arthurian Literature**

A survey of the origins and development of the Arthurian legend from the earliest chronicles in the sixth century and later medieval French, Welsh, Irish, and English Arthurian poems to modern adaptations of Arthurian material, including films. Please consult <http://www.english.rice.edu> for additional information. Also offered as ENGL 317 and MDST 317. Instructor(s): *Chance*

WGST 303 WOMEN'S STORIES & LEGAL CHANGE (3)**Women's Stories and Legal Change**

This course will consider how narratives move us toward individual responsibility and social action. We will examine this question with reference to feminist legal theory as well as some philosophical works on the powers of storytelling. Narratives we will read include published literary fiction by woman authors but also selected legal cases.

WGST 305 CHAUCER (3)**Chaucer**

Focus will be primarily on "The Canterbury Tales," this philosophical and material culture, and their dramatic and literary potential. Also offered as ENGL 316 and MDST 316. Instructor(s): *Chance*

WGST 317 WOMEN AND NATIONAL SOCIALISM (3)**Mapping German Culture: Women and National Socialism**

Introduction to the Nazi idea of "womanhood" and the actual roles women played during National Socialism. Female perpetrators, Mitläufer, a multiplicity of victims, and to resistance fighters. Taught in English. For students of German (at the minimal proficiency level intermediate-mid), an additional German reading/discussion hour for credit can be arranged. Also offered as GERM 327 and HUMA 327. Instructor(s): *Kecht*

WGST 319 FRNCH & FRANCOPHONE WOMEN WRITERS (3)**French and Francophone Women Writers**

An examination of selected French and Francophone women writers from the Middle Ages to the present. We will pay particular attention to the intersections of gender, race, ethnicity, nationality, sexuality and class as they emerge in the literary text. Also offered as FREN 319. Instructor(s): *Huffer*

WGST 323 BUDDHISM, GENDER, SOCIETY (3)**The Knowing Body: Buddhism, Gender and the Social World**

Western thought tends to regard mind and body dualistically, a view with significant impact on religious cultural, gender and social processes. This course juxtaposes received Western assumptions with Buddhist perspectives (especially Tibetan Buddhist), mapping Western and Buddhist categories onto each other to better understand the implications of each. Also offered as RELI 323, SOCI 323, and ASIA 323. Instructor(s): *Klein, Long*

(F) = Fall; (S) = Spring

WGST 324 SOCIOLOGY OF GENDER (3)**Sociology of Gender**

Relationship between gender and social role. Development of the contemporary sexual division of labor and process of socialization with reference to family, education, media, and occupations. Enrollment limited to 55. Also offered as SOCI 306. Instructor(s): *Long*

WGST 325 SOCIOLOGY OF THE FAMILY (3)**Sociology of the Family**

This course will teach students the important influences and consequences of American family life. We will consider issues such as dating, marriage and cohabitation, divorce, family structure, gay marriage, domestic violence, and household labor. We will also examine the role of society in shaping family norms and constraints on family behaviors. Also offered as SOCI 334. Instructor(s): *Heard*

WGST 327 THIRD WAVE FEMINIST CULTURES (3)**Third Wave Feminist Cultures**

Topics vary from year to year. Also offered as ENGL 380. Instructor(s): *Comer*

WGST 328 LATIN AMERICAN GENDERS (3)**Latin American Genders**

Course examines diversity of Latin American cultures and gender relations from modern urban societies to Indian peasant villages. Also offered as HIST 328. Instructor(s): *Wolfe*

WGST 329 LIT & CULT AMERICAN WEST (3)**Literature and Culture of the American West**

Please consult <http://www.english.rice.edu> for additional course information. Also offered as ENGL 369. Instructor(s): *Comer*

WGST 330 MAPPING GERMAN CULTURE (3)**Mapping German Culture: Courtship, Love and Marriage in the Age of Chivalry**

The literature of the High Middle Ages is the first since antiquity to probe the hazards and potentials of romance between men and women, as well as single-sex friendship and love. This course will show how the literary ideal of love emerged in a society that was torn apart by war and rivalry. The poems and stories we will read belong to the treasures of medieval literature from the German lands. Taught in English with a possible FLAC section. Also offered as GERM 330, MDST 335, and HUMA 330. Instructor(s): *Westphal*

WGST 331 THE PSYCHOLOGY OF GENDER (3)**The Psychology of Gender**

Overview of research and theory on gender in psychology. Also offered as PSYC 331. Instructor(s): *Hebl*

WGST 332 SOCIETY IN ANCIENT GREECE (3)**Sex, Self, and Society in Ancient Greece**

An introductory venture into conducting fieldwork in the past. The course treats a wide range of artifacts, from philosophical essays to vase paintings. It derives its focus from a rich corpus of recent research into the ancient problemization of desire and self-control. Also offered as ANTH 325. Instructor(s): *Faubion*

WGST 333 MASCULINITIES (3)**Masculinities**

This course deals with masculinities in the West, concentrating on concepts of masculine protagonism and personhood. Readings explore identities constructed in realms such as law, politics, finances, art, the home, and war. Also offered as ANTH 311. Instructor(s): *Taylor*

WGST 335 LIFECYCLE BIOLOGICAL VIEW (3)**The Lifecycle: A Biocultural View**

The human life cycle from conception to death. Focus is on the interaction between biological processes and culture. Also offered as ANTH 388. Instructor(s): *Georges*

WGST 336 HISTORY AS A CULTURAL MYTH (3)**History As a Cultural Myth**

Explores ideas of history and attitudes toward the past as culturally conditioned phenomena. Emphasizes history as a statement of cultural values as well as conceptualizations of cause, change, time, and reality. Also offered as ANTH 308. Instructor(s): *Taylor*

WGST 339 FEMINIST PHILOSOPHY (3)**Feminist Philosophy**

This course is an introduction to feminist philosophy, including texts by both historical and contemporary thinkers (e.g. Wollstonecraft, Mill, de Beauvoir, MacKinnon, Gilligan, Irigaray). We shall discuss both feminists' radical critiques of traditional values and beliefs, and feminist alternative views of justice, ethical judgment, and truth. Also offered as PHIL 319. Instructor(s): *Zuckert*

(#) = credit hours per semester

WGST 340 GENDER & POLITICIZED RELIGION (3)**Gender and Politicized Religion (Enriched Version)**

This course examines the emergence of religion-based politics in various Asian countries—particularly Hindu and Muslim—focusing on the women participants in these movements as well as the movements' concern with gender roles in society. We will investigate, for instance, the extent to which women participants have been willing or able to reshape the central ideas of such movements. Also offered as ASIA 340. Instructor(s): *Shehabuddin*

WGST 341 GENDER AND POLITICS (3)**Gender and Politics**

Examination of politics through the lens of gender hierarchy. Emphasis on how the constructions of masculinity and femininity shape and are shaped and are shaped by interacting economic, political, and ideological practices. Instructor(s): *Branton*

WGST 348 SUBJECTIVITY IN MOD/POST- ART (3)**Subjectivity in Modern and Postmodern Art and Thought**

This course examines the intellectual history of subjectivity and its various representations in modernist and postmodernist aesthetics. In particular, we will consider the intersection of subjectivity and desire by examining the ongoing project of human self-creation through aesthetics, ornament, framing devices, technological apparatuses, and other supplementary objects of desire within traditional humanist discourses to recent "posthumanist" narratives. Instructor(s): *Brennan*

WGST 349 WOMEN WRITERS: 1400-1900 (3)**Women Writers: 1400–1900**

A survey of major British early women writers. Poems, memoirs, plays, and novels by significant women, and their film adaptations. Please consult <http://www.english.rice.edu> for additional course information. Also offered as ENGL 319. Instructor(s): *Chance*

WGST 350 GENDER AND SYMBOLISM (3)**Gender and Symbolism**

Examinations of beliefs concerning men, women, and gender in different cultures, including the West, relating to issues of symbolism, power, and the distribution of cultural models. Also offered as ANTH 327. Instructor(s): *Taylor*

WGST 358 MAP GERM CULT:EUROWOMEN FILMKR (3)**European Women Filmmakers (Mapping German Culture)**

Filmmaking has celebrated its first hundred years. Women's contributions were significant and deserve to widen the film canon for all filmgoers. The course will concentrate on films by European women directors, taking into account aesthetic particularities, gender commitment, and post-feminist attempts. Importance will also be given to the contexts and conditions of women's film production. All films are subtitled in English. Taught in English with possible FLAC section. Also offered as GERM 321, HUMA 321, HART 385. Instructor(s): *Eifler*

WGST 365 GEND & HIST OF PHOTOGRAPHY (3)**Gender, Subjectivity, and the History of Photography**

This course will examine a range of subjects within the history, theory, and criticism of photography, including the relationship between commodification, eroticism, and the objectification of the body, and the intersecting issues of mechanical reproduction, authorship, and authenticity in modern and postmodern discourses. Enrollment limited to 15. Also offered as HART 365. Instructor(s): *Brennan*

WGST 366 TOPICS IN AMERICAN LITERATURE (3)**Topics in American Literature**

Topics vary from year to year. Please consult <http://www.english.rice.edu> for additional course information. Also offered as ENGL 366. Instructor(s): *Staff*

WGST 367 AMERICAN ECOFEMINISM (3)**American Ecofeminism: Intersections Between Feminism, Pacificism, Environmentalism**

Also offered as ENGL 367. Instructor(s): *Comer*

WGST 368 MYTHOLOGIES (3)**Mythologies**

This interdisciplinary course will introduce students to a variety of world mythologies and mythmakers, from the beginnings to the modern period. Included mythologies: Babylonian, Sumerian, Hindu, Egyptian, Greek, Roman, Irish, Welsh, Old Norse, Anglo-Saxon, Finnish, Mayan, Hopi, and modern (Borges, Philip Glass). Also offered as ENGL 309 and MDST 368. Instructor(s): *Chance*

WGST 369 SEM: BEAUTY & FRAG IN MOD ART (3)**Seminar on Beauty and Fragmentation in Modern Art**

This course will examine literal and symbolic representation of the body in modern American and European art. Topics addressed will include conceptions on beauty vs. subjective fragmentation; the performance nature of social identity; and art history's long-standing preoccupation with the sensuous equivalency of flesh and paint. Also offered as HART 369. Enrollment limited to 15. Instructor(s): *Brennan*

(F) = Fall; (S) = Spring

WGST 370 SURVY AFRICAN AMER LITERATURE (3)**Survey of African American Literature**

This course traces, through various genres and themes, African American literary history from the late eighteenth century to the present. Attention is given to theories and critiques of African American literature and culture. Please consult <http://www.english.rice.edu> for additional information. Also offered as ENGL 370. Instructor(s): Fultz

WGST 372 SURVEY OF VICTORIAN FICTION (3)**Survey of Victorian Fiction: The 19th Century Novel**

A survey of the genres of the 19th-century novel, this course will try to come to terms with some of the insistent questions posed by and through the fiction of the period. Also offered as ENGL 342. Instructor(s): *Michie*

WGST 387 CULTURAL STUDIES (4)**Cultural Studies**

Topics vary from year to year. Please consult <http://www.english.rice.edu> for additional information. Also offered as ENGL 387 and HART 387. Instructor(s): *Levander, Ostberr*

WGST 389 GENERATION X IN LIT & CULTURE (3)**Generation X in Literature and Culture**

An interdisciplinary survey of Generation X in literature, music, film, and politics. Also offered as ENGL 389. Instructor(s): *Comer*

WGST 390 HISPANIC CINEMA (3)**Hispanic Cinema**

This course examines the ways in which films in both Spain and Latin America have represented the cultural contexts of their countries. Focus is on the theme of power, and on the consequences on social and individual lives. Also offered as SPAN 390. Prerequisite(s): Third-year Spanish or permission of the instructor. Instructor(s): *Gonzalez-Stephan*

WGST 391 FEMINIST VISUAL CULTURE (3)**Producing Feminist Knowledge: Methodology and Visual Culture**

In this course we will examine various methodologies used by feminist scholars in the Social Sciences and the Humanities. Particular attention will be devoted to the practical application of feminist methodologies in visual culture and the history of art, as well as to the interdisciplinary feminist inquiries in science, ethnography, and epistemology. Also offered as HART 391. Enrollment is limited to 10. Instructor(s): *Brennan, Shehabuddin*

WGST 395 FEMINIST KNOWLEDGES (3)**Feminist Knowledges**

In this course we will examine various methodologies used by feminist scholars in the social sciences and the humanities. Particular attention will be devoted to interdisciplinary feminist inquiries in science, ethnography, and epistemology. Instructor(s): *Shehabuddin*

WGST 399 WOMEN IN CHINESE LITERATURE (3)**Women in Chinese Literature**

This course examines women's roles in Chinese literature as writers, readers, and characters, focusing particularly on the tension between women's lived bodily experiences and the cultural experiences inscribed on the female body and how, in the process, women have contrarily gendered patriarchal culture into their own. It will also touch on Chinese women's incorporation of the Western Tradition. Also offered as ASIA 399. Instructor(s): *Qian*

WGST 400 CONSTR IDENTITY MODERN FICTION (3)**Constructing Identities in Modern Fiction**

This course will explore the construction of racial, sexual, gendered, and ethnic identities in modern fiction, with a particular concern for the connections among identity, literary form, and social categories of meaning. Readings include Woolf, Colette, Duras, Carter, Djebbar, Morisson, Winterson, Baraoui, and others. Instructor(s): *Huffer*

WGST 405 AUSTEN ONLY (3)**Austen Only**

This course will try to come to terms with Jane Austen as author and icon. Material will include all her fiction as well as portions of her letters and biography. Recent film and television adaptations of her novels will also be critically examined. Also offered as ENGL 443.

WGST 410 IMAGE OF THE MEDIEVAL WOMAN (3)**The Literary and Historical Image of the Medieval Woman**

Comparison and contrast of the presentation of the medieval woman in literature with extant evidence of historical women from contemporary documents and records. Also offered as FREN 410 and MDST 410. Prerequisite(s): FREN 311 or 312, or AP credit, or permission of the instructor. Instructor(s): *Nelson-Campbell*

WGST 412 WOMEN'S VOICES IN FREN LIT (3)**Women and Women's Voices in French Literature**

Examination of the ways in which women have been represented in fiction, by themselves and by others, since the early modern period. Readings from Mme. de Lafayette, Baudelaire, Villiers de L'Isle-Adam, de Beauvoir, Duras, and Wittig, with emphasis on the constitution of the "feminine" in literary texts as cultural, historical, and social artifact. Also offered as FREN 460. Prerequisite(s): FREN 311, 312, or AP credit or permission of the instructor.

Instructor(s): *Harter*

WGST 415 SOCILINGUISTICS (3)**Sociolinguistics**

Topic: Issues of language and gender, race, and class. The course will begin with an overview of contemporary sociolinguistic theory and methodologies. We will then examine the linguistic consequences to speakers of their membership in groups, defined in terms of gender, race, and class. Also offered as LING 415. Instructor(s): *Niedzielski*

WGST 420 WOMEN & GENDER 19TH CENT EUROPE (3)**Women and Gender in 19th Century Europe**

Examination of the political and cultural discussions of the "Woman Question" in 19th-century Europe. Includes the role of public and private legal rights in republicanism and the early feminist movement, gender equality in the context of 19th-century socialist movements, and the challenges to gender identity posed by cultural modernism. Also offered as HIST 349. Instructor(s): *Wildenthal*

WGST 422 FEMINIST ECONOMICS (3)**Feminist Economics**

This is an introductory course covering a range of theoretical and policy issues in contemporary feminist economics. Topics include: the social construction of economic knowledge; disciplinary debates; global economic issues relating to gender, race, ethnicity, and sexual orientation; economic justice; children and family policy; unpaid work; inequities in pay, wealth, and resources; and gender budgets. No prior training in economics is required. Offered with additional work as WGST 522. Enrollment limited to 15. Instructor(s): *Strassman*

WGST 430 QUEER THEORY (3)**Queer Theory**

What is queer theory and why is it important? This course aims to answer these questions by examining key issues in queer theory and situating them in the context of major literary and cultural theories of the past quarter century. As such the course will also serve as an introduction to psychoanalytic theory, poststructuralism, deconstruction, postcolonial theory, film studies and recent work on the relationship between science and literature. Also offered as ENGL 498.

WGST 432 ISLAM IN SOUTH ASIA (3)**Islam In South Asia**

Topics will include emergence of Indian Muslim society; Muslim responses to colonialism and the movement for Pakistan; and the role of Islam in politics in contemporary India, Pakistan, and Bangladesh. Requires no prior knowledge of Islam or South Asia. Also offered as HIST 432 and ASIA 432. Enrollment limited. Instructor(s): *Shehabuddin*

WGST 434 FRENCH FEMINIST THEORY (3)**French Feminist Theory**

The purpose of this course is to gain a broad understanding of the important problems of contemporary feminist theories in French. We will focus on the interrelated issues of gender, sexuality, race, ethics, language, and power by exploring in depth primary texts in feminist theory. Readings (in English) will include Beauvoir, Irigaray, Djebbar, and Brossard. This course specifically intends to expose the fundamentals of French feminist theory as they apply to the broader spectrum of contemporary feminist thought and philosophy. Course will be offered in translation. Also offered as FREN 434 Instructor(s): *Huffer*

WGST 442 WOMEN IN RUSSIAN LITERATURE (3)**Women in Russian Literature**

The portrayal of women in major works of Russian literature, with particular attention paid to the women writers' presentation of women. No knowledge of Russian required. Also offered as RUSS 420. Instructor(s): *Thompson*

WGST 448 DISEASE & DIFFERENCE (3)**Disease and Difference: The Body in Visual Culture**

This course examines the history of visual representations of disease in photography, cinema, and digital media. We will consider how nationally, racially, and sexually marked bodies constitute an iconography of social and organic contamination. Topics include early cinema, colonialism, photography, eugenics, immigration, science fiction, and Internet viruses. Also offered as HART 486 and ENGL 458. Instructor(s): *Ostberr*

WGST 453 TOPICS IN AFRICAN AMER LIT (3)**Topics in African American Literature: Black Women Writers**

Topics vary from year to year. Also offered as ENGL 470. Instructor(s): *Fultz*

(F) = Fall; (S) = Spring

WGST 455 MEDIEVAL ISLAM WOMEN/GENDER (3)**Medieval Islam Women and Gender**

Examination of the legal position and social realities of men and women in the Islamic world, with emphasis on how boundaries of gender have traditionally been drawn. Includes the family and sexual ethics, the harem, polygamy, divorce, and eunuchs (who played an important role in both the military and in certain religious institutions). Enrollment is limited. Also offered as MDST 438 and HIST 438. Instructor(s): *Sanders*

WGST 460 FEMINIST SOCIAL THOUGHT (3)**Feminist Social Thought**

Study of feminist theory as critique and reconstruction. Includes Wollstonecraft and de Beauvoir, as well as contemporary debates about equity, difference, knowledge, sexuality, and power. Also offered as SOCI 395. Instructor(s): *Long*

WGST 462 20TH-21ST AMER LIT STUDIES (3)**20th Century American Studies: History, Memory, and Identity in Later 20th Century U.S. Literature**

Course varies from year to year. Also offered as ENGL 462. Instructor(s): *Lurie*

WGST 465 GENDER AND HEALTH (3)**Gender and Health**

This course will examine the relationship between gender and health, both physical and mental. We will begin the semester by examining issues related to gender and health in the U.S., and spend the second half of the semester examining gender and health in an international context. THIS COURSE WILL BE TAUGHT AT UT-SPH NOT AT RICE. Enrollment limited. Also offered as SOCI 465. Prerequisite(s): Permission of the instructor. Instructor(s): *Gorman*

WGST 468 WOMEN & THE WELFARE STATE (3)**Women and the U.S. Welfare State: Sexual Politics and American Poverty**

This seminar in the history of women and welfare focuses on women's contributions to the growth of the welfare system and investigates how welfare has been shaped by understandings of gender, race, and class. Compares American programs to similar programs developed in other countries. Also offered as HIST 468. Instructor(s): *Sneider*

WGST 470 SEX, SANCTITY, PSYCHOANALYSIS (3)**Sex, Sanctity, Psychoanalysis**

An advanced mapping of the psychoanalytic study of religion through a close reading of psychoanalytically informed studies of saints, founding figures, and charismatic teachers, with a particular focus on sexuality and gender and their relationship to the expression and representation of holiness in the history of religions. Also offered as RELI 480. Enrollment limited to 25. Instructor(s): *Kripal, Parsons*

WGST 480 FEMINIST LITERARY THEORY (3)**Feminist Literary Theory**

Also offered as ENGL 382. Instructor(s): *Lurie*

WGST 482 CONTEMPORARY FEMINIST THEORY (3)**Problems in Contemporary Feminist Theory**

The purpose of this course is to gain a broad understanding of the important problems of contemporary feminist theory. We will focus on the interrelated issues of gender, sexuality, race, ethics, language, and power by exploring in depth primary texts in feminist theory. Prerequisite(s): WGST 101, 201, or permission of the instructor. Instructor(s): *Huffer*

WGST 485 GENDER AND HOLLYWOOD 1950'S (3)**Gender and Hollywood Cinema in the 1950s**

This course examines representations of gendered subjectivity in Hollywood cinema during the 1950s. Some of the topics to be addressed include the uneasy relationship between normative domesticity and heterosexual masculinity, and issues of voyeurism, eroticism, the ongoing conflict between liberated individualism and social conformity in corporate culture and bourgeois society. Enrollment limited to 20. Also offered HART 485. Instructor(s): *Brennan*

WGST 495 INDEPENDENT STUDY (HOURS VARIABLE)**Independent Study**

Open to SWG majors only. With permission of instructor. Instructor(s): *Staff*

WGST 496 APPLIED WOMEN'S & GENDER STUDY (HOURS VARIABLE)**Applied Women's and Gender Study**

Hours variable, 1-3+ hours. Internship will be arranged individually at the request of students; details must be approved by the director. Students will also be required to submit a paper of between 8-15 pages (depending on the amount of credit) that demonstrates their ability to apply critically their knowledge of women's and gender studies. Prerequisite(s): Permission of SWG Director required. Instructor(s): *Huffer*

(*) = credit hours per semester

WGST 497 DIRECTED READING (HOURS VARIABLE)**Directed Reading**

Hours variable 1-3 hours. Directed reading under the supervision of a SWG faculty member with permission of the instructor. May count only once toward major requirements. Instructor(s): *Staff*

WGST 498 RESEARCH STUDY WOMEN & GENDER (3)**Research in Study of Women Gender**

Research seminar for SWG seniors to fulfill capstone requirement. Open to SWG majors only. Instructor(s): *Huffer*

WGST 499 RESEARCH STUDY WOMEN & GENDER (3)**Research in the Study of Women and Gender**

Research seminar for SWG seniors to fulfill capstone requirement. Open to SWG majors only. Instructor(s): *Huffer*

WGST 501 FEMINIST DEBATES (3)**Feminist Debates**

This course identifies and traces three streams of thought by debates about major issues in women's studies. While the content of these streams will vary, the course will always be attentive to the historical and theoretical context of the debates in question and to the intersection of these debates with others. Topics might include: public and private spheres; the relation between the local and the global links between gender and sexuality; the problem of identity; the relation between activist and academic feminism. Instructor(s): *Michie, Westphal*

WGST 502 GENDER, DISCIPL, & INTERDISCIPL (3)**Gender, the Disciplines, and Interdisciplinary**

This course examines the relation between women's studies and the traditional disciplines. Topics include: disciplinarity, interdisciplinarity, and multidisciplinary; the institutional place of women's studies; pedagogy in women's studies; and the relation of women's studies to area, global, ethnic, race, and sexuality studies. Students will produce a women's studies intro course syllabus and a paper to deliver at an interdisciplinary women's studies conference. Prerequisite(s): WGST 501. Instructor(s): *Staff*

WGST 520 SHAKESPEARE & DIFFERENCE (3)**Shakespeare and Difference**

Topics vary from year to year as needed. Please consult <http://www.english.rice.edu> for additional course information. Also offered as ENGL 520. Instructor(s): *Skura*

WGST 522 FEMINIST ECONOMICS (3)**Feminist Economics (Enriched Version)**

This is an introductory course covering a range of theoretical and policy issues in contemporary feminist economics. Topics include: the social construction of economic knowledge; disciplinary debates; global economic issues relating to gender, race, ethnicity, and sexual orientation; economic justice; children and family policy; unpaid work; inequities in pay, wealth, and resources; and gender budgets. No prior training in economics is required. Enrollment limited to 15. Instructor(s): *Strassmann*

WGST 523 DIR RDG WOMEN & GEND HIST (4)**Directed Reading in Women's and Gender History**

Also offered as HIST 523. Instructor(s): *Staff*

WGST 525 SOCIETY IN ANCIENT GREECE (3)**Sex, Self, and Society in Ancient Greece**

Graduate version of WGST 332. Instructor(s): *Faubion*

WGST 542 VICTORIAN FICTION (3)**Victorian Fiction**

Topics vary from year to year as needed. Please consult www.english.rice.edu for additional course information. Different topics may be repeated for credit. Instructor(s): *Staff*

WGST 545 WOMEN & GENDER: EUR & BEYOND (4)**Women Gender Europe Beyond**

Graduate seminar examining recent work in key areas of research on women and gender; nationalism; the modern welfare state; and the challenges which histories of working-class women have posed to definitions of politics, feminism, class, and family. Setting will include colonial and national Britain, India, Africa, Netherlands, Indonesia, France, and Germany. Also offered as HIST 545. Instructor(s): *Wildenthal*

WGST 546 20TH CENT BRITISH LIT (3)**20th Century British Literature**

Topics vary from year to year as needed. Please consult <http://www.english.rice.edu> for additional information. Different topics may be repeated for credit. Also offered as ENGL 546. Instructor(s): *Lamos*

(F) = Fall; (S) = Spring

WGST 551 U.S. WOMEN'S HISTORY (4)**U.S. Women's History**

Graduate readings seminar. Content vary. Also offered as HIST 551. Instructor(s): *Sneider*

WGST 556 SEMINAR IN LANGUAGE VARIATION (3)**Seminar in Language Variation**

Topics vary from semester to semester. For this semester, we will take a move in depth look at language variation as it relates to gender and ethnicity. We will examine such variation from both quantitative and qualitative stand points. Also offered as LING 556. Instructor(s): *Niedzielski*

WGST 576 TOPICS U.S. WOMEN'S HISTORY (4)**Topics in U.S. Women's History**

Graduate research seminar in U.S. women's history designed to introduce students to a growing body of literature on women and gender that is changing the way historians understand American history more broadly. By considering a variety of new scholarship participants are introduced to the major questions that have engage feminist historians for decades, as well as new questions that are just now beginning to shape the field. Also offered as HIST 576 Instructor(s): *Sneider*

WGST 577 BUDDHISM, GENDER, SOCIETY (3)**The Knowing Body: Buddhism, Gender, and the Social World**

Western thought tends to regard mind and body dualistically, a view with significant impact on religious cultural, gendered and social processes. This course juxtaposes received Western assumptions with Buddhist perspectives (especially Tibetan Buddhist), mapping Western and Buddhist categories onto each other to better understand the implications of each. Instructor(s): *Klein*

WGST 580 SEX, SANCTITY, PSYCHOANALYSIS (3)**Sexuality, Sanctity, and Psychoanalysis**

An advanced mapping of the psychoanalytic study of religion through a close reading of psychoanalytically informed studies of saints, founding figures, and charismatic teachers, with a particular focus on sexuality and gender and their relationship to the expression and representation of holiness in the history of religions. Also offered as RELI 580. Instructor(s): *Kripal; Parsons*

WGST 581 CULTURAL STUDIES (3)**Cultural Studies**

Topics vary from year to year as needed. Please consult <http://www.english.rice.edu> for additional information. Also offered as ENGL 581. Instructor(s): *Lurie*

WGST 585 POSTCOLONIALISM & AFTER (3)**Postcolonialism and After**

Course serves both as an introduction to postcolonial theory and as a reevaluation of its political and ethical end vis-à-vis recent debates around globalization and cosmopolitanism. Please consult <http://www.english.rice.edu> for additional course information. Also offered as ENGL 585. Instructor(s): *Joseph*

ADMINISTRATION AND STAFF



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Assistant to the President	Mark Scheid
Provost	Eugene H. Levy
Vice Provost for Academic Affairs	Walter Isle
Vice Provost for Research and Graduate Studies	Jordan Konisky
Vice Provost for Information Technology	Kamran Khan
Vice Provost and University Librarian	Charles Henry
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Vice President for Student Affairs	Zenaido Camacho
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Dean of the George R. Brown School of Engineering	C. Sidney Burrus
Dean of the Shepherd School of Music	Robert Yekovich
Dean of the School of Architecture	Lars Lerup
Dean of the Wiess School of Natural Sciences	Kathleen S. Matthews
Dean of the School of Continuing Studies	Mary B. McIntire
Dean of the School of Social Sciences	Robert Stein
Dean of the Jesse H. Jones Graduate School of Management	Gilbert R. Whitaker, Jr.

ADMINISTRATIVE OFFICES

Academic Advising	Michele Daley
Administrative Systems	Randy Castiglioni
Admission	Julie Browning
Affirmative Action/Equal Employment Opportunity	Russell Barnes
Alumni Affairs	Mark Davis
Athletics	J. R. "Bobby" May
Budget Office	Kathy Collins
Campus Store	Michelle Jones Vanderwater
Career Services	Cheryl Matherly
Cashier's Office	Patricia C. Ciampi
Community Involvement Center	Mac Griswold
Controller's Office	Evelyn Stewart
Counseling Center	Lindley Doran
Delivery Services	Pat Kambhu
Disability Support Services	Jean Ashmore
Educational Outreach	Roland Smith
Educational Technology & Networking Information	William Deigaard
Emergency Medical Service (EMS)	Bill Taylor
Enrollment: Administration	Diane Havlinek
Enterprise Systems and Applications	Andrea Martin
Environmental Health and Safety	Kathryn Cavender
Events Office	Lauren Linn
Facilities and Engineering	Bill Mack
General Counsels	Carlos Garcia, Joe Davidson
Housing and Dining	Mark Ditman

Human Resources	Mary A. Cronin
Information Technology Client Services	John Ferro
Information Technology & Telecommunications	David Tenney
Institutional Research	Leona Urbish
International Programs (Study/Work Abroad)	Shannon Cates, Cheryl Matherly
International Students and Scholars	Adria Baker
Intramural and Club Sports	Tina Villard
KTRU General Manager	Will Robedee
Language Resource Center	Claire Bartlett
Leadership Rice	Susan A. Lieberman
Media Relations and Information	Margot Dimond
Multicultural Affairs	Catherine E. Clack
Networking	William Deigaard
Payroll Office	Darlene Banning
Police Department (RUPD)	Bill Taylor
President's Office	Mark Scheid
Provost's Office	Colleen Morimoto
Public Affairs	Margot Dimond
Registrar's Office	TBN
Research and Graduate Studies	Debra Purtee
Scholarships and Fellowships	Patricia Bass
Sponsored Research	Jordan Konisky
Student Activities	Heather Masden
Student Affairs	John Hutchinson
Student and Recreation Center	Boyd Beckwith
Student Financial Services	Julia Benz
Student Health Services	Mark Jenkins, M.D.
Student Judicial Programs	Donald Ostdiek
Transportation Office	Eugen Radulescu
University Relations	Greg Marshall
Wellness Center	Emily Page

COLLEGE MASTERS

Baker College	Jose Aranda and Krista Comer
Brown College	John and Paula Hutchinson
Hanszen College	Wesley and Barbara Morris
Jones College	Robin Forman and Ann Owens
Lovett College	Bernard and Carolyn Aresu
Martel College	Arthur and Joan Few
Richardson College	Steve and Laura Cox
Wiess College	Katharine Donato and Daniel Kalb
Will Rice College	Joel and Traci Wolfe

FACULTY

EMERITUS FACULTY

- Akers, William Walter**, 1947–93. Professor Emeritus in Chemical Engineering
BS (1943) Texas Technological College; MS (1944) University of Texas at Austin; PhD (1950) University of Michigan
- Alcover, Madeleine**, 1975–2004. Professor Emerita of French
Licence de lettres modernes (1962), Diplôme d'études supérieures (1963), Doctorat de 3e cycle (1965) France
- Ambler, John S.**, 1964–2003. Professor Emeritus of Political Science
BA (1953) Willamette University; MA (1954) Stanford University; Certificat d'études politiques (1955) University of Bordeaux; PhD (1964) University of California at Berkeley
- Andrews, John F.**, 1982–91. Professor Emeritus of Environmental Science and Engineering
BSCE (1951), MS (1954) University of Arkansas; PhD (1964) University of California at Berkeley
- Apple, Max**, 1972–2001. Gladys Louise Fox Professor Emeritus of English
BA (1963), University of Michigan; MA (1965) Stanford University; PhD (1970) University of Michigan
- Awapara, Jorge**, 1957–84. Professor Emeritus of Biochemistry
BS (1941), MS (1942) Michigan State University; PhD (1947) University of Southern California
- Bailar, Benjamin F.**, 1987–97. H. Joe Nelson, III, Professor Emeritus of Administration
BA (1955) University of Colorado; MBA (1959) Harvard Graduate School of Business Administration
- Baker, Donald Roy**, 1966. Professor Emeritus of Geology and Honorary Associate of Brown College
BS (1950) California Institute of Technology; PhD (1955) Princeton University
- Baker, Stephen D.**, 1963–2004. Professor Emeritus of Physics and Astronomy
BS (1957) Duke University; MS (1959), PhD (1963) Yale University
- Bale, Allen M.**, 1947–78. Athletic Director Emeritus
BS (1930) Rice Institute; MA (1939) Columbia University
- Bally, Albert W.**, 1981–96. Harry Carothers Wiess Professor Emeritus of Geology
PhD (1953) University of Zurich, Switzerland
- Barker, J. R.**, 1949–86. Professor Emeritus of Health and Physical Education
BS (1949) Rice Institute; MEd (1954) University of Texas at Austin
- Beckmann, Herbert W. K.**, 1957–85. Professor Emeritus of Mechanical Engineering
Cand. Ing. (1939), Dipl. Ing. (1944), Dr. Ing. (1957) Hanover University, Germany
- Bixby, Robert E.**, 1984–98. Noah Harding Professor Emeritus of Computational and Applied Mathematics
BS (1968) University of California at Berkeley; MS (1971), PhD (1972) Cornell University
- Bland, Robert L.**, 1954–92. Professor Emeritus of Kinesiology
BA (1953) Central Washington State College; MA (1954) Columbia University
- Boterf, Chester Arthur**, 1973–93. Professor Emeritus of Art
BA (1959) Kansas University; MFA (1965) Columbia University
- Brelsford, Jr., John W.**, 1970–2000. Professor Emeritus of Psychology
BA (1960), MA (1961) Texas Christian University; PhD (1965) University of Texas at Austin
- Brotzen, Franz Richard**, 1954–86. Stanley C. Moore Professor Emeritus of Materials Science
BS (1950), MS (1953), PhD (1954) Case Institute of Technology
- Brown, Katherine Tsanoff**, 1963–89. Professor Emerita of Art History and Honorary Associate of Will Rice College
BA (1938) Rice Institute; MFA (1940) Cornell University
- Burt, George**, 1984–97. Professor Emeritus of Theory and Composition
BA (1955) University of California at Berkeley; MA (1958) Mills College; MFA (1962) Princeton University
- Camfield, William A.**, 1969–2002. The Joseph and Joanna Nazro Mullen Professor Emeritus of Art and Art History
AB (1957) Princeton University; MA (1961), PhD (1964) Yale University
- Campbell, James W.**, 1959–2000. Professor Emeritus of Biochemistry and Cell Biology
BS (1953) Southwest Missouri State University; MS (1955) University of Illinois; PhD (1958) University of Oklahoma
- Cason, Carolyn**, 1956–74. Lecturer Emerita in Dietetics
BS (1934) University of Texas at Austin; MA (1939) Columbia University
- Chapman, Alan Jesse**, 1946–95. Harry S. Cameron Professor Emeritus of Mechanical Engineering
BSME (1945) Rice Institute; MS (1949) University of Colorado; PhD (1953) University of Illinois
- Clark, Howard Charles**, 1966–88. Professor Emeritus of Geology and Geophysics
BS (1959) University of Oklahoma; MA (1965), PhD (1967) Stanford University

- Class, Calvin M.**, 1952–85. Professor Emeritus of Physics
AB (1943), PhD (1951) John Hopkins University
- Copeland, James E.**, 1966–2001. Professor Emeritus of Linguistics and German
BA (1961) University of Colorado; PhD (1965) Cornell University
- Daichman, Graciela S.**, 1973–99. Lecturer Emerita of Hispanic Studies
Profesorado (1959) Instituto Nacional del Profesorado en Lenguas Vivas, Argentina;
MA (1975), PhD (1983) Rice University
- Davidson, Chandler**, 1966–2003. Radoslaw A. Tsanoff Professor Emeritus of Public Affairs and Sociology and Research Professor
BA (1961) University of Texas at Austin; MA (1966), PhD (1969) Princeton University
- Davis, Philip W.**, 1969–2003. Agnes Cullen Arnold Professor Emeritus of Linguistics
BA (1961) University of Texas at Austin; PhD (1965) Cornell University
- Davis, Jr., Sam H.**, 1957–2000. Professor Emeritus in Chemical Engineering and Computational and Applied Mathematics
BA (1952), BS (1953) Rice Institute; ScD (1957) Massachusetts Institute of Technology
- De Bremaecker, Jean-Claude**, 1959–94. Professor Emeritus of Earth Science
Ingenieur Civil des Mines (1948) University of Louvain, Belgium; MS (1950) Louisiana State University; PhD (1952) University of California at Berkeley
- Dennis, John E.**, 1979–2002. Noah Harding Professor Emeritus of Computational and Applied Mathematics and Research Professor
BS (1962); MS (1964) University of Miami; PhD (1966) University of Utah
- Dessler, Alexander J.**, 1963–93. Professor Emeritus of Space Physics and Astronomy
BS (1952) California Institute of Technology; PhD (1956) Duke University
- Doughtie, Edward O.**, 1963–2001. Professor Emeritus of English
AB (1958) Duke University; AM (1960), PhD (1964) Harvard University
- Drew, Katherine Fischer**, 1950–96. Lynette S. Autrey Professor Emerita of History
BA (1944), MA (1945) Rice Institute; PhD (1950) Cornell University
- Dyson, Derek C.**, 1966–2000. Professor Emeritus of Chemical Engineering
BA (1955) University of Cambridge; PhD (1966) University of London
- Evans, Elinor Lucile**, 1964–85. Albert K. and Harry K. Smith Professor Emerita of Architecture
BA (1938) Oklahoma State University; MFA (1954) Yale University
- Fisher, Jr., Frank M.**, 1963–2002. Professor Emeritus of Biology
BA (1953) Hanover College; MS (1958), PhD (1961) Purdue University
- Fliegel, Raphael**, 1975–89. Professor Emeritus of Violin
- Freeman, John W.**, 1964–2000. Professor Emeritus of Space Physics and Astronomy and Associate of Lovett College
BS (1957) Beloit College; MS (1961); PhD (1963) University of Iowa
- Gardner, Gerald H. F.**, 1990–93. Professor Emeritus of Geophysics
BS (1948) Trinity College, Dublin; MSc (1949) Carnegie Mellon University; PhD (1953) Princeton University
- Gordon, Chad**, 1970–99. Professor Emeritus of Sociology
BS (1957), MA (1962), PhD (1963) University of California at Los Angeles
- Gordon, William E.**, 1965–85. Distinguished Professor Emeritus of Space Physics and Astronomy and of Electrical and Computer Engineering
BA (1939), MA (1942) Montclair State College; MS (1946), PhD (1953) Cornell University
- Grob, Alan**, 1961–2002. Professor Emeritus of English
BA (1952) Utica College; MA (1957), PhD (1961) University of Wisconsin at Madison
- Hackerman, Norman**, 1970–85. President Emeritus and Distinguished Professor Emeritus of Chemistry
AB (1932), PhD (1935) Johns Hopkins University
- Hake, Evelyn**, 1932–74. Lecturer Emerita in Biology
BA (1930), MA (1932) Rice Institute
- Hale, Elton B.**, 1963–79. Professor Emeritus of Accounting
BS (1937), MA (1940) Southwest Texas State Teachers College; PhD (1948) University of Texas at Austin
- Hansz, Ingrid**, 1987–2000. Lecturer Emerita of Hispanic Studies, 2001 Language Consultant for School of Continuing Studies
BA (1952) Universidad de la Republica; MA (1987) Rice University
- Harvey, F. Reese**, 1968–2003. Professor Emeritus of Mathematics
BS, MA (1963) Carnegie Institute of Technology; PhD (1966) Stanford University
- Havens, Neil**, 1964–2000. Professor Emeritus of Art and Art History
BA (1956) Rice Institute; MA (1959) Indiana University

- Haymes, Robert C.**, 1968–98. Professor Emeritus of Space Physics and Astronomy
BA (1952), MS (1953), PhD (1959) New York University
- Heymann, Dieter**, 1966–98. Professor Emeritus of Geology and Geophysics
MS (1954), PhD (1958) University of Amsterdam, The Netherlands
- Hightower, Joe W.**, 1967–01. Professor Emeritus of Chemical Engineering
MS (1961), PhD (1963) John Hopkins University
- Hodges, Lee**, 1930–71. Professor Emeritus of French
BS (1930) Harvard University; MA (1934) Rice Institute
- Holt, Edward C.**, 1956–93. Professor Emeritus of Civil and Environmental Engineering
SB (1945), SM (1947) Massachusetts Institute of Technology; PhD (1956) Pennsylvania State University
- Huddle, Donald L.**, 1964–92. Professor Emeritus of Economics
BS (1959), MA (1960) University of California at Los Angeles; PhD (1964) Vanderbilt University
- Hyman, Harold M.**, 1968–97. William P. Hobby Professor Emeritus of History
BA (1948) University of California at Los Angeles; MA (1950), PhD (1952) Columbia University
- Jitcoff, Andrew N.**, 1950–72. Professor Emeritus of Russian
Bachelor (1928), Master (1931) Prague Institute of Technology, Czechoslovakia
- Jones, Samuel**, 1973–97. Professor Emeritus of Music
BA (1957) Millsaps College; MA (1958), PhD (1960) Eastman School of Music, University of Rochester
- Jump, J. Robert**, 1968–2003. Professor Emeritus of Electrical and Computer Engineering and of Computer Science and Honorary Master of Lovett College
BS (1960), MS (1962) University of Cincinnati; MS (1965), PhD (1968) University of Michigan
- Kiperman, Anita**, 1976–98. Lecturer Emerita of Spanish
BA (1957) Universidad Nacional de Buenos Aires; MA (1971) University of Houston
- Kobayashi, Riki**, 1951–97. Louis Calder Professor Emeritus in Chemical Engineering
BS (1944) Rice Institute; MSE (1947), PhD (1951) University of Michigan
- Lamb, Sydney M.**, 1981–98. Agnes Cullen Arnold Professor Emeritus of Linguistics and Cognitive Sciences
BA (1951) Yale University; PhD (1958) University of California at Berkeley
- Laughery, Kenneth R.**, 1982–2002. Herbert S. Autrey Professor Emeritus of Psychology and Research Professor
BS (1957), MS (1959), PhD (1961) Carnegie Mellon University
- Leal, Maria Teresa**, 1965–96. Professor Emerita of Spanish and Portuguese
BA (1946) Pontifícia Universidade Católica, Brazil; PhD (1963) Universidade Federal de Rio de Janeiro, Brazil
- Lecuyer, Maurice Antoine**, 1962–79. Professor Emeritus of French
Baccalaureat es lettres (1937), Licence es lettres (1943), Diplome d'études supérieures (1944) Université de Paris, France; PhD (1954) Yale University
- Lee, Eva J.**, 1969–2000. Professor Emerita of Kinesiology
BS (1962) North Texas State University; MEd (1967) Sam Houston State University; EdD (1974) Louisiana State University
- Leeds, Jr., J. Venn**, 1964–89. Professor Emeritus of Electrical and Computer Engineering
BA (1955), BSEE (1956) Rice Institute; MSEE (1960), PhD (1963) University of Pittsburgh; JD (1972) University of Houston
- Lewis, Edward S.**, 1948–90. Professor Emeritus of Chemistry
BS (1940) University of California at Berkeley; PhD (1947) Harvard University
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INDEX

A

- Academic Calendar vii-xiii
- Academic discipline 31
 - Academic suspension 31
 - Disciplinary probation and suspension 31
 - Graduate studies 67
 - Readmission after suspension 32
- Academic philosophy 14
- Academic probation
 - Undergraduate 31
- Academic regulations
 - Applicable 33
 - Graduate 62-68
 - Undergraduate 21-54
- ACCO (Accounting) 261
- Accreditation Board for Engineering and Technology 14, 208
- ACT code 39
- Administration 588
- Administrative offices 588
- Admissions 36
 - Accelerated students 41
 - Application 39
 - First-year applicants 38
 - New students 36
 - Other students 42
 - Transfer students 41
- Advanced placement tests 42
- AFSC (Air Force Science) 261. *See also Air Force Science*
- Air Force Science 80-82
 - AFROTC Scholarship Opportunities 81
 - Four-Year Program 80
 - Stipend 81
 - Two-Year Program 80
- Ancient Mediterranean Civilizations 83-85
 - Requirements for BA 83
- Ancient Mediterranean civilizations
 - Interdepartmental majors 20
- Anthropology 86-87
 - Department information 71
 - Financial support 87
 - Graduate degree chart 60
 - Honors program 86
 - Medical anthropology 87
 - Requirements for
 - BA 86-87
 - MA and PhD 86
 - Special options 87
 - Undergraduate degree chart 20
- ANTH (Anthropology) 261. *See also Anthropology*
- Appeal
 - Graduate studies 67
- Application
 - Graduate deadline 57
 - Graduate process 56
 - Undergraduate fee waiver 42
 - Undergraduate with a degree from another college 26
- Applied Physic
 - Interdepartmental and Cooperative Programs Chart 61
- Approval of candidacy form, to Office of Graduate Studies 65
- ARAB (Arabic) 274. *See also Center for the Study of Languages*
- Architecture 88-89
 - Departmental majors 17
 - Department Information 68
 - Portfolio and interview 39
 - Preceptors 91
 - Preceptorship 17, 88
 - Requirements for
 - BA 89
 - BArch 89
 - BA in Architectural Studies 89
 - MArch 91
 - MArch in Urban Design 93
 - PhD 94
 - Undergraduate degree chart 18
- Architecture applicants
 - Fall semester admission only 38
- ARCH (Architecture) 275. *See also Architecture*
- Area of concentration 17
- ARTV (Visual Arts) 286. *See also Visual Arts*
- Art History 95-96
 - Honors Programs 95
 - Requirements for BA 95
- Art history
 - Undergraduate degree chart 19
- Asian Studies 97-101
 - Requirements for BA 97
- Asian studies
 - Interdepartmental majors 20
- ASIA (Asian Studies) 294. *See also Asian Studies*
- Assignment
 - Residential college 51
- Astronomy. *See ASTR; Physics and Astronomy*
- ASTR (Astronomy) 298. *See also Physics and Astronomy*
- Athletic events sticker 73
- Auditors 43
- Autry Court 12
- Away status
 - Graduate studies 72

B

- Bachelor's degree
 - Basic requirements 14-54
 - Second four-year 25
- Bachelor of Arts
 - Minimum requirements 16
- Bachelor of Fine Arts
 - Departmental majors 17
- Bachelor of Fine Arts portfolio 40
- Bachelor of Science
 - Degree requirements 16
- Baylor College of Medicine
 - Joint MBA/MD Program 193
- Best Buddies 53
- BIOE 300. *See also Bioengineering*
- Bioengineering 102
 - Department Information 68
 - Graduate Degree Chart 58
 - Requirements for
 - BS 103
 - ME, MS, and PhD 104
 - Undergraduate degree chart 18
- Joint Programs in Biomedical Ethics
 - Interdepartmental and Cooperative Programs Chart 62
- BIO5 306. *See also Biosciences*
- Biosciences 106-112
 - Biochemistry and Cell Biology
 - Accelerated BA-BS/PhD 109

Graduate Degree Chart 60
 Requirements for
 BA 108
 BS 108
 MA and PhD 110
 Biological Sciences
 Requirements for
 BA 108
 Ecology and Evolutionary Biology
 Requirements for
 BS 108
 MA and PhD 111
 Ecology and evolutionary biology
 Undergraduate degree chart 20
 Undergraduate degree chart 20
 Black Student Association 52
 Board of Trustees 3

C

CAAM 314. *See also Computational and Applied Mathematics*
 Campus Map, Rice University 4-5
 Canterbury Association 53
 CAPP. *See also College Assistance Peer Program*
 Cashier's Office 49
 Catholic Student Association 53
 CENG 318. *See also Chemical Engineering*
 Center for the Study of Languages 113-114
 Placement testing 113
 Scholarships 114
 Transfer credits 114
 CEVE 322. *See also Civil and Environmental Engineering*
 Changes in name 34
 CHEM 326. *See also Chemistry*
 Chemical Engineering 115-117
 Department information 69
 Graduate Degree Chart 59
 Requirements for
 BA 116
 BSChE 115-117
 MChE, MS, and PhD 117
 Undergraduate degree chart 18
 Chemistry 118-123
 American Chemical Society Certification 120, 121
 Graduate Degree Chart 60
 Requirements for
 Accelerated BA/PhD Program 121
 BA 119
 BS 120
 BS, chemical physics major 120
 MA and PhD 121-123
 Undergraduate degree chart 20
 CHIN 333. *See also Asian studies; Center for the Study of Languages*
 Chinese Student Association 52
 Christian Science Organization 53
 Civil and Environmental Engineering 124-129
 Civil Engineering
 PhD program 129
 Requirements for a BA 126
 Requirements for BS 124
 Department Information 69
 Environmental Engineering Sciences
 Requirements for BA 126
 Requirements for MCE, MEE, MES, MS, and PhD 129
 Graduate Degree Chart 59
 Undergraduate degree chart 18
 Civil Engineering
 Requirements for BA 126

Requirements for BS 124
 CLAS 335. *See also Classical Studies*
 Classical studies 130-131
 Intercollegiate Center for Classical Studies 130
 Requirements for BA 130
 Class III students 25, 36, 76
 Application 77
 Tuition and fees 77
 Code of Student Conduct 8, 52
 Cognitive Sciences 132-134
 Honors program 132
 Interdepartmental majors 20
 Requirements for BA 132
 College Assistance Peer Program 11
 College Board Code 39
 College Food Service 45, 51
 College masters 589
 Committee on Examinations and Standing 9, 10
 Community Involvement Center 53-54
 COMP 338. *See also Computer Science*
 Computational and Applied Mathematics 135-138
 Computational Science and Engineering
 Requirements for MCSE and PhD 137
 Department Information 69
 Graduate Degree Chart 59
 Requirements for
 BA 136
 MCAM, MA, and PhD 136
 Undergraduate degree chart 18
 Joint Program in Computational Biology
 Interdepartmental and Cooperative Degree Chart 62
 Computational Science and Engineering
 Interdepartmental and Cooperative Programs Chart 61
 Computational Science and Engineering
 Requirements for MCSE and PhD 137
 Computer resources 10
 Computer Science 139-142
 Department Information 69
 Financial assistance 141
 Graduate Degree Chart 59
 Requirements for
 BA 140
 MCS and MS 141
 PhD 141
 Undergraduate degree chart 18
 Confidentiality
 Rice Counseling Center 12
 Student Health and Wellness Center 11
 Course registration 63
 CSCI 344. *See also Cognitive Science*

D

Date violence 11
 Reporting 10
 Debate 53
 Decision plans 40
 Early decision plan 40
 Interim decision plan 40
 Regular decision plan 40
 Default withdrawal 22
 Deferred payment plan 48, 49
 Degree requirements
 Bachelor of Arts 16
 Bachelor of Science 16
 Bioengineering 16
 Chemical Engineering 16
 Computer Science 16
 Electrical and Computer Engineeringr engineer-
 ing 16
 Graduate degrees 62-68
 Materials Science 16

- Delinquent accounts 46
- Department
 - Honors program enrollment 26
- Department information chart 68-71
- Disabilities, students with 12
- Dismissal
 - Graduate 67
- Distribution groups 15-16
- Distribution requirements 15
- Donne Di Domani scholarship 114
- Double or triple majors 17
- Drop/Add
 - Graduate students 72
- Drop/add 22
 - Charges 23
 - Conditions 22
 - Students in first year at Rice 22

E

- Early decision plan 40
- Earth Science 143-147
 - Department Information 71
 - Graduate Degree Chart 60
 - Requirements for BA 146
 - Requirements for BS
 - Environmental earth science track 145
 - Geochemistry track 144
 - Geology track 144
 - Geophysics track 145
 - Self-designed track 146
 - Requirements for MS and PhD , 147
 - Undergraduate degree chart 20
 - Undergraduate independent research , 146, 147
- Ecology and Evolutionary Biology
 - Department Information 71
 - Graduate Degree Chart 60
- ECON 344. *See also Economics*
- Economics 148-154
 - Department Information 71
 - Graduate Degree Chart 61
 - Requirements for
 - BA in Economics 148-149, 153
 - BA in Mathematical Economic Analysis 148
 - Five-year MA Program 153
 - PhD in Economics 154
 - Undergraduate degree chart 20
- EDUC 350. *See also Education and Education Certification*
- Education 155
 - Department Information 69
 - Undergraduate degree chart 19
- Education Certification 156-159
 - Higher Education Act Title II reports 159
 - Interdepartmental and Cooperative Programs Chart 61
- Internship 156
 - Requirements for
 - Class III certification 158
 - MAT 158
 - Secondary teaching certificate 157
 - Student teaching 156-157
 - Texas teaching credential 156
 - Undergraduate degree chart 19
- Education Certification Program 14
- ELEC 353. *See also Electrical and Computer Engineering*
- Electrical and Computer Engineering 160-164
 - Department Information 69
 - Graduate Degree Chart 59
 - Requirements for
 - BA 163
 - BSEE 163
 - MEE, MS, and PhD 163
 - Undergraduate degree chart 19
- Electrical Engineering
 - Requirements for
 - BS 163
- Emergencies 10
- Emergency loan fund 48
 - Graduate studies 75
 - Undergraduate 48
- Emeritus faculty 590
- ENGI 363. *See also George R. Brown School of Engineering*
- ENGL 364. *See also English*
- English 165-167
 - Department Information 69
 - Financial support 167
 - Graduate Degree Chart 59
 - Requirements for
 - BA 165-167
 - MA and PhD 166-167
 - Undergraduate degree chart 19
- English as a second language 190
 - Tutoring 53
- English composition examination 15
- Enrollment
 - Changes in 34
- ENST 376. *See also Environmental Studies*
- Environmental Analysis and Decision Making 168
 - Admission 168
 - Interdepartmental and Cooperative Programs Chart 61
 - Requirements for MS 168
- Environmental Engineering Sciences
 - Requirements for BA 126
 - Requirements for MCE, MEE, MES, MS, and PhD 128
- Environmental Science. *See also Environmental Studies*
 - Requirements for BA 171
- Environmental Studies 171
 - Environmental Science
 - Requirements for BA 171
- ESCI 376. *See also Earth Science*
- Excused absences 28
- Exhibitions, Lectures, and Arts Programs at Rice 96
- Expected family contribution 47
- Expenses 45-54

F

- Faculty 594
 - Associates 51
 - Emeritus 590
 - Grading guidelines 9
 - Masters 51
- Fall semester admission only
 - Architecture applicants 38
 - First-year applicants 38
 - International students 38
- Family Educational Rights and Privacy Act of 1974 34-35
- Fellowships 73
- Final examinations 9, 28
 - Take-home exam 28
- Financial aid
 - After suspension 50
 - Deferred payment plan 48
 - Eligibility 49
 - Expected family contribution 47
 - Graduate 73-77
 - Assistantships 73
 - Eligibility 73
 - Federal work-study employment 74
 - Loans 74
 - Mary Lyn and Niles Mosely loan fund 74

- Professor John A.S. Adams, Sr., Memorial Graduate 74
- Research assistantships 73
- Rice fellowships 73
- Rice tuition scholarships 73
- Scholarships 73
- Special loan programs 74
- Stafford Student Loans 74
- Military Science 215
- Undergraduate 47-54
 - Application process 47
 - Assistance 48
 - College Scholarship Service (CSS) 40, 47
 - Decision 48
 - Disabled students 49
 - Federal Perkins Loan Program 48
 - Grants 47
 - Mary Lyn and Niles Mosely loan fund 61
 - Policy 49
 - PROFILE packet 40, 47
 - Stafford student loan 48
 - Student Financial Services 47
 - Summer school 36
 - William D. Ford Federal Direct Parent Loan 48
- Financial aid probation 49
- Appeal 49
- First-year applicants
 - Fall semester admission only 38
- FREN 384. *See also French Studies*
- French Studies
 - Department Information 69
 - Graduate Degree Chart 59
 - Undergraduate degree chart 19
- French studies 174-176
 - Campus activities 175
 - Clyde Ferguson Bull Traveling Fellowship 175
 - Requirements for
 - BA 174
 - MA and PhD 175
 - Travel abroad 175
- FSEM 391. *See also School of Humanities*
- G**
- George R. Brown Forensic Society 53
- George R. Brown School of Engineering
 - Departmental majors 17
 - Department Information 68
- GERM 393. *See also German and Slavic Studies*
- German and Slavic Studies
 - German Studies 177
 - Requirements for BA 177
 - Slavic Studies
 - Requirements for BA 178
- German and Slavic studies
 - Undergraduate degree chart 19
- Grades 9-12, 63
 - Basis for 9
 - Calculating grade point averages 30
 - Changing 9
 - Designations 29-30
 - Explanation for 9
 - Honor roll 30
 - Pass/fail 28
 - Repeat courses 29
 - Symbols 29
- Faculty Grading Guidelines 9
- Graduate
 - Academic discipline 67
 - Academic regulations 62
 - Admission 56-58
 - Admission deadline 57
 - Appeals 67
 - Application process 56
 - Away status 72
 - Candidacy, oral examinations, and thesis 64, 65
 - Cooperative programs 62
 - Credit for previous degrees 63
 - Deadlines 63
 - Departmental duties 63
 - Department Information Chart 68-71
 - Disciplinary sanctions 67
 - Dismissal and appeal 67
 - Emergency loan fund 75
 - Employment 63
 - Enrollment 63
 - Fellowships, honors, and prizes 75
 - Financial aid 73
 - Application 74
 - Work-study 74
 - Full-time study 62
 - Grades 63
 - Health insurance 72
 - Housing
 - Morningside Square Apartments 76
 - Rice Graduate Apartments 75
 - Leave of absence 66
 - Minimum hours 63
 - Oral examinations 64
 - Other fees 72
 - Part-time study 62
 - Pass/Fail 63
 - PhD candidacy 64, 65
 - Probationary status 67
 - Reduced tuition 72
 - Requirements 62-68
 - Residency 62
 - Resolution of problems 72
 - Student loans 74
 - Summer school 36
 - Thesis 64
 - Committee 64
 - Oral examination 64
 - Regulations and procedures 65
 - Time to candidacy 62
 - Time to defense 63
 - Time to degree 62
 - Time to thesis submission 63
 - Tuition, fees and expenses 72
 - Withdrawal and readmission 66
- Graduate degrees 57-58
 - Master's programs 57-58
 - PhD programs 57-58
 - Professional degrees 56, 58
 - Research degrees 57-58
 - Terminal degrees 58
- Graduate Management Admission Test 56, 193
- Graduate Record Examination (GRE) 56
- Graduate student life
 - Ad hoc university committees 75
 - Graduate Council 75
 - Graduate Student Association Council 75
 - Health insurance requirements 76
 - Research Council 75
 - Student association 75
 - Student government 75
- Graduate studies website 56
- Graduation
 - Application for undergraduates 36
 - Requirements for
 - Graduates 62
 - Undergraduate 14-54
- GREE 397 *See also Center for the Study of Languages; Classic Studies*
- Group III distribution requirements 16
- Group II distribution requirements 16
- Group I distribution requirements 15

H

- HART 397. *See also Art History; Visual Arts*
 HEAL 409. *See also Kinesiology*
 Health and counseling services 10
 Health data form 22, 76
 Late fee 22
 Health insurance 11, 76
 Graduate 72, 76-77
 Undergraduate 46
 HEBR 411. *See also Center for the Study of Languages*
 Hillel Society 53
 HIND 412. *See also Center for the Study of Languages*
 Hispanic Association for Cultural Education 52
 Hispanic Studies 179-180
 Department Information 70
 Graduate Degree Chart 59
 Honors 179
 Requirements for
 BA 179
 MA 180
 Undergraduate degree chart 19
 HIST 413. *See also History*
 History 181-183
 Advanced placement 182
 Department Information 70
 Graduate Degree Chart 59
 Honors program 182
 Requirements for
 BA 181-183
 MA and PhD 182-183
 Transfer credit 182
 Undergraduate degree chart 19
 Honors program 26-54
 Financial assistance 182
 Honor Code 8
 Honor Council 8, 52
 Honor Roll, President's 30
 Honor societies 50
 Honor System 8
 Honor system 28
 HONS 431. *See also Honors courses*
 Housing
 Graduate 75-77
 Lease agreement 45
 Undergraduate 45
 HUMA 432. *See also School of Humanities*

I

- IELTS 57
 Immunizations
 Required 22
 Immunization requirements 76
 Incomplete grade 29
 Independent study courses 9
 Information technology
 Off-campus fee 44
 On-campus fee 44
 Insurance. *See Health, student*
 Intercollegiate speech and debate 53
 Interdepartmental and Cooperative Programs
 Graduate Degree Chart 61
 Interdepartmental and cooperative programs
 Undergraduate degree chart 18
 Interdepartmental majors 18
 Undergraduate degree chart 18-54
 Interim decision plan 40
 International students
 Fall semester admission only 38
 Intervarsity Christian Fellowship 53
 ITAL 435. *See also Center for the Study of Languages*

J

- Jake Hess Tennis Stadium 12
 JAPA 436. *See also Center for the Study of Languages*
 Jesse H. Jones Graduate School of Management 136
 Departmental Information 70
 Graduate Degree Chart 60
 Joint Campus Ministry 53
 Jones Graduate School
 Admissions 193-202

K

- KINE 437. *See also Kinesiology*
 Kinesiology 184-186
 Health sciences program 186
 Requirements for BA 184
 Sports medicine program 184
 Sport management program 185
 Undergraduate degree chart 19
 KORE 440. *See also Asian studies; Center for the Study of Languages*

L

- Language Resource Center 113
 LATI 441. *See also Classical Studies*
 Leave of absence
 Graduate study 66
 Undergraduate 33, 44
 Ley Student Center 53
 Lifetime Physical Activity Program 187
 Lincoln-Douglas debate 53
 LING 442. *See also Linguistics*
 Linguistics 188-191
 Certificate in English Language Teaching 190
 Department Information 70
 Graduate Degree Chart 59
 Honors program 189
 Requirements for
 BA 188
 PhD 190
 Undergraduate degree chart 19
 LPAP 449. *See also Lifetime Physical Activity Program*
 LPAP requirement 15
 Lutheran Student Association 53

M

- Majors 17
 Area majors 24
 Declaring departmental majors 24
 Interdepartmental graduate 61
 Interdepartmental undergraduate 18
 MANA 455. *See also Managerial Studies*
 Management 192, 201
 Academic and professional standards 195
 Academic regulations 196
 Appealing academic dismissal 197
 Appealing ALP individual grade 198
 Appealing ALP team grade 199
 Appealing grades 197
 Class attendance policy 202
 Drop/add policy 199
 Financial aid 202
 Grading policy 196
 Graduate Degree Chart 60
 Joint MBA/Master of Engineering program 193
 Joint MBA/MD Program 193
 MBA
 Program 193
 MBA for Executives Program 193

- MBA Program 192
 - Requirements for
 - Joint MBA/Master of engineering program 194
 - Joint MBA/MD Program 195
 - MBA 193
 - MBA for Executives of Engineering 194
 - Undergraduate degree chart 19
 - Waivers, exemptions, and transfers of credit 194
 - Withdrawal policy 202
 - Managerial Studies 203
 - Honors program 203
 - Requirements for BA 203
 - Mandarin Chinese
 - Scholarship 114
 - Mantoux tuberculin skin test 22
 - Map. *See Campus Map, Rice University*
 - Master's degree
 - Automatic master's 58
 - Nonthesis 58
 - Master's programs 57-58
 - Masters, residential colleges 589
 - Master of Architecture 57
 - Master of Arts 57
 - Master of Music 57
 - Master of Science 57
 - Materials Science and Engineering. *See Mechanical Engineering and Materials Science*
 - Interdepartmental and Cooperative Programs
 - Chart 61
 - MATH 455. *See also Mathematics*
 - Mathematics 205-206
 - Department Information 71
 - Graduate Degree Chart 60
 - Qualifying examinations 206
 - Requirements for
 - BA 205-206
 - MA and PhD 206
 - Undergraduate degree chart 20
 - MDST 459. *See also Medieval Studies*
 - MECH 463. *See also Mechanical Engineering and Materials Science*
 - Mechanical Engineering and Materials Science
 - 207-210
 - Department Information 69
 - Graduate Degree Chart 59
 - Material Science and Engineering
 - Requirements for MME, MMS, MS, and PhD 210
 - Mechanical Engineering
 - Requirements for BA 209
 - Requirements for BA, BSME, and BSMS 208
 - Requirements for MME, MMS, MS, and PhD 210
 - Undergraduate degree chart 19
 - Joint Programs with Medical Colleges
 - Interdepartmental and Cooperative Programs
 - Chart 62
 - Medical Colleges
 - Graduate Degree Chart 62
 - Medical emergencies 10
 - Medieval Studies 211-213
 - Interdepartmental majors 21
 - Requirements for BA 211
 - Mentor Recognition Award 52
 - Message from the President vi
 - MGMT 470. *See also Management*
 - Mid-semester grades
 - First-year students 10
 - MILI 488. *See also Military Science*
 - Military leave of absence 33
 - Military Science 214
 - Allowance 215
 - Corps of Cadets 216
 - Degree requirements 214
 - Financial assistance 215
 - Four-year program 214
 - Leader's Training Course 215
 - Minor in 216
 - National Guard and Army Reserve 215
 - Other financial aid 215
 - Statutory authority 214
 - Tuition 215
 - Two-year program 214
 - University of Houston 214
 - Veterans 215
 - Morningside Square Apartments 76
 - MSCI 489. *See also Mechanical Engineering and Materials Science*
 - MUSI 493. *See also Music*
 - Music 217-220
 - Academic standards 219
 - Courses for nonmajors 219-220
 - Departmental majors 17
 - Department Information 70
 - Examinations 218
 - Grading policy 219
 - Graduate Degree Chart 60
 - Honors program 218
 - Leaves of absence and voluntary withdrawal 219
 - Lectures and performances 220
 - Musical opportunities 219
 - Performance 218
 - Requirements for
 - All music majors 218-220
 - BA in Music, BMus and BMus/MMus 218-220
 - MMus and DMA 219
 - Thesis 219
 - Undergraduate degree chart 19
- ## N
- Name changes 34
 - Nanoscale Physics 221
 - Interdepartmental and Cooperative Programs
 - Chart 61
 - Requirements for MS 221
 - National Architectural Accrediting Board 88-89
 - NAVA 510. *See also Naval Science*
 - Naval Science 223-224
 - Degree requirements 223
 - Nonscholarship Navy ROTC students 223
 - Scholarship Navy ROTC students 223
 - Two-year program 223
 - U.S. Naval Reserve 223
 - NEUR 511. *See also Neurosciences*
 - Neurosciences 225
 - Baylor College of Medicine 225
 - NSCI 512. *See also School of Natural Science*
- ## O
- Off-campus study and exchange programs 21
 - Office of Student Activities 52
 - Office of Student Financial Services 48
 - Office of Student Organizations 53
 - Oral examinations
 - Announcement of 65
 - Outreach Day 53
- ## P
- Parliamentary debate 53
 - Party permits 52
 - Pass/Fail
 - Graduate study 63
 - Pass/fail 28
 - Convert a pass/fail course 29
 - Payments and refunds
 - Undergraduate 45

PhD programs 57
 PHIL 514. *See also School of Natural Science*
 Philosophy 226-227
 Bioethics program 227
 Continental philosophy program 227
 Department Information 70
 Graduate Degree Chart 60
 Requirements for
 BA 226-227
 MA and PhD 227
 Undergraduate degree chart 19
 PHYS 519. *See also Physics and Astronomy*
 Physics and Astronomy 228-229
 BA degree in
 Astronomy 231
 Physics 230
 BS degree in
 Astrophysics 230
 Chemical Physics 231
 Physics 229
 Physics w/option in Applied Physics 229
 Physics w/option in Biophysics 230
 Department Information 71
 Graduate Degree Chart 60
 Requirements for
 Undergraduate degree 229
 Requirements for advanced degrees
 MS and PhD 231
 Undergraduate degree chart 20
 Placement testing, languages 113
 Plagiarism, avoiding allegations of 9
 PLSH 524. *See also Center for the Study of Languages; Slavic Studies*
 POLI 525. *See also Political Science*
 Policy Studies 232-235
 Interdepartmental majors 18, 21
 Requirements for BA 232-235
 Political Science 236-238
 Directed readings courses 237
 Graduate Degree Chart 61
 Honors program 237
 Requirements for
 BA 236-238
 MA and PhD 237
 Undergraduate degree chart 20
 PORT 534. *See also Center for the Study of Languages*
 Preceptors
 Architecture 91
 Preceptorship 17
 Fee 46
 Premedical, prelaw, and prebusiness programs 18
 President's Honor Roll 30
 Private loan programs
 Graduate 74
 Probation
 Graduate 67
 Undergraduate 31
 Academic 31
 Probation or suspension
 Rice Summer School 32
 Professional degrees
 Graduate 56, 58
 Program for the Study of Women and Gender
 Interdepartmental majors 21
 The Program for the Study of Women and Gender
 251-254
 Requirements for BA 251
 Requirements for Graduate Certificate 253
 PSYC 534. *See also Psychology*
 Psychology 239-240
 Department information 71
 Graduate degree chart 61
 Honors program 240

Requirements for
 BA 240
 MA and PhD 240
 Undergraduate degree chart 20

Q

qualitative and quantitative standards 49

R

Readmission 22
 Readmission after suspension 32
 Refund of tuition and fees 44
 Registrar address 35
 Registration
 Course load 23
 Late registration fee 22
 Requirements 21
 Regular decision plan 40
 Release of student information 34, 35
 RELI 541. *See also Religious Studies*
 Religious organizations 53
 Baptist Student Association 53
 Canterbury Association 53
 Catholic Student Association 53
 Christian Science Organization 53
 Hillel Society 53
 InterVarsity Christian Fellowship 53
 Joint Campus Ministry 53
 Lutheran Student Association 53
 Wesley Foundation 53
 Religious Studies 241-243
 Department Information 70
 Graduate degree chart 60
 Honors program 241
 Professional development 243
 Requirements for
 BA 241-243
 MA and PhD 242-243
 PhD, fields of study 242
 Undergraduate degree chart 19
 Repeat courses 23, 29
 Required fees
 Undergraduate 44
 Reserve Officers' Training Corps (ROTC) programs
 Navy 223
 Residence fees 45
 Residential colleges 45, 51-54
 Assignment 51
 College courses and workshops 52
 Continuing students 51
 Elected officers and representatives 51
 Faculty associates 51
 Faculty masters 51
 First-year students 51
 Lease agreement 45
 Residential dining web site 45
 Resolution of problems
 Graduate studies 72
 Return of Title IV funds
 Graduate 75
 Undergraduate 44, 50
 Rice ACT code 39
 Rice College Board code 39
 Rice Counseling Center 10
 Appointments 11
 College Assistance Peer Program 11
 Confidentiality 12
 Crisis intervention 11
 Date violence 11
 Eligibility 11
 Office hours 11
 Rice graduate apartments 75

Rice Graduate Financial Aid Application 74
 Rice Habitat for Humanity 53
 Rice Players 53
 Rice Program Council 52
 Rice Republicans 52
 Rice Service Award 52
 Rice Student Association 52
 Rice Student Volunteer Program (RSVP) 53
 Rice Summer School 36
 Applications 36
 Auditors 36
 Financial aid 36
 Probation or suspension 32
 Rice Thresher 52
 Rice Track Stadium 12
 Rice University Registrar
 Address 35
 Rice Young Democrats 52
 Room and board 51
 Fees 44
 RUSS 552. *See also Center for the Study of Languages; Slavic Studies*

S

SANS 553. *See also Sanskrit; Linguistics: Asian Studies*
 Satisfactory academic progress 49
 Schedule of courses offered 15
 Scholarship 114
 Center for the Study of Languages 114
 Donne Di Domani 114
 School of Architecture
 Department Information 68
 Graduate Degree Programs 58
 School of Continuing Studies
 Summer programs 36
 School of Humanities
 Departmental majors 17
 Graduate Degree Chart 59
 Undergraduate degree chart 19
 School Of Social Sciences
 Graduate Degree Chart 60
 School of Social Sciences
 Departmental majors 18
 Department Information 71
 Undergraduate degree chart 20-54
 Second four-year bachelor's degree 25
 Currently enrolled undergraduates 25
 Financial aid 26
 On-campus housing 26
 Students already enrolled at Rice 25
 Shepherd School of Music
 Graduate Degree Chart 60
 SLAV 553. *See also German and Slavic Studies*
 SOCI 554. *See also Sociology*
 Sociology 244-245
 Honors program 244-245
 Requirements for BA 244-245
 Undergraduate degree chart 20
 SOSOC 557. *See also School of Social Sciences*
 SPAN 558. *See also Center for the Study of Languages; Hispanic Studies*
 Special charges
 Graduate 72
 Undergraduate 46
 Sports facilities
 Autry Court 12
 Fox Gymnasium 12
 Jake Hess Tennis Stadium 12
 John L. Cox Fitness Center 12
 Reckling Park 12
 Rice Track Stadium 12
 Standardized testing 39
 STAT 568. *See also Statistics*

Statistics 246-247
 Graduate degree chart 59
 Requirements for
 BA 246-247
 MStat, MA, and PhD 247
 Student conduct, code of 8
 Student courts 52
 Student employment programs 48
 Student government
 Graduate 75
 Undergraduate 52-54
 Student health and counseling services 10
 Student Health and Wellness Center
 Hours 10
 Services 10
 Student Health Service 10-12
 Fee 10-12
 Student Judicial Programs 8
 Student organizations 52
 Student records 34
 Student responsibility 8
 Student Senate 52
 Study abroad 21
 Study of Women and Gender
 Interdepartmental and Cooperative Programs
 Chart 62
 Subsurface Geoscience
 Interdepartmental and Cooperative Programs
 Chart 62
 Subsurface geoscience 248
 Requirements for MS 248
 Suspension
 Disciplinary 31

T

TB screening requirement
 Graduate 76
 Undergraduate 22
 Teacher certification
 Program fees 46
 Test of English as a Foreign Language 57, 193
 Texas Medical Center 87
 Texas Rehabilitation Commission (TRC) 49
 THEA 572. *See also English*
 Thesis
 Announcement of 65
 Committee 64
 Oral examination in defense of 64
 Regulations and procedures 65
 Submission of 65
 The Higher Education Act of 1965 49
 Thresher 52
 TIBT 574. *See also Center for the Study of Languages*
 Title IV funds
 Return 50
 Transcripts 47
 Fee 34
 Transcript policies 34
 Transfer credit 27
 And general degree requirements 27
 Of courses taken in high school 39
 Prior approval 27
 Rice International Programs 27
 Transfer credits
 Languages 114
 Tuition and fees
 Class III students 77
 Graduate 72
 Refund of 44-54
 Residence fees 45
 Undergraduate 43-54
 Special charges 46

U

- Undergraduate
 - Academic probation 31
 - Academic regulations 21
 - Academic suspension 31
 - Admissions 36, 39
 - Architecture portfolio and interview 39
 - Early decision plan 40
 - Interim decision plan 40
 - Music audition 39
 - Personal interview 39
 - Regular decision plan 40
 - Standardized testing 39
 - Application for graduation 36
 - Class III students 43
 - Degree chart 18-54
 - Departmental majors 17
 - Department Information Chart 68-71
 - Disciplinary probation and suspension 31
 - Distribution requirements 15
 - Dual enrollment students 43
 - Experience 14
 - Final examinations 28
 - Financial aid 47
 - Application process 47
 - Student employment programs 48
 - Types of financial aid and assistance 48
 - Vocational rehabilitation 49
 - Health insurance 46
 - Honor roll 30
 - Interdepartmental majors 18
 - Living expenses 45
 - Majors 17
 - Other academic options 18
 - Payments and refunds 45
 - Readmission after disciplinary/nonacademic action 32
 - Readmission after suspension 32
 - Refund of tuition and fees 44
 - Required fees 44
 - Room and board 44
 - Second degree students 43
 - Special charges 46
 - Student life 51
 - Summer school 36
 - Transcripts 47
 - Transfer credit 27
 - Tuition, fees, and expenses 43
- Undergraduate degrees
 - Graduation requirements 14-54
 - Hour minimums for BA 16
- Undergraduate degree chart 18-54
- Undergraduate scholars program 26
- UNIV 574. *See also University Courses*
- University Courses 255
- University courts 8
- University of Texas School of Public Health 87
- University standing committees 630
- Use of university name 8

V

- Veterans information 35
- Visiting students 42
 - Summer school 36
- Visual Arts 256-257
 - Exhibitions and arts programs at Rice 257
 - Requirements for
 - BA 256
 - BFA 256
 - Rice Cinema 257
 - Transfer credit 257
 - Undergraduate degree chart 19
- Vocational rehabilitation 49

W

- Waiver of application fee 42
- Wesley Foundation 53
- WGST 577. *See also Program for the Study of Women and Gender, The*
- Wiess School of Natural Sciences
 - Departmental majors 18
 - Department Information Chart 70
 - Graduate Degree Chart 60
 - Undergraduate degree chart 20
- Withdrawal 8, 44
 - By default 22
 - Involuntary 32
 - Readmission after 32
 - Unauthorized 33
 - Voluntary 32
- Withdrawal and readmission
 - Graduate student 67
 - Undergraduate 30
- Women and Gender, The Program for the Study of.







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